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## Leading Article

# Science and Architectural Education

SOME NEW and stimulating ideas on architectural education which, if adopted, might go far to helping newly emerging architects grapple with the complex building problems of the present day, were propounded by PROFESSOR J. K. PAGE in his inaugural lecture as Professor of Building Science at the University of Sheffield on March 1. Professor Page entitled his address, some extracts from which are given on another page, 'Science and Architectural Education,' but his remarks make it perfectly clear that the two cannot be separated if architects are successfully to meet the challenge of such developments as the 'package deal.'

Recognising that architecture is neither wholly a science nor wholly an art, Professor Page considers that the primary technological objective in architecture is to produce a biologically acceptable environment for human beings. He believes that building science has an obviously creative role to play in the architect's programme, which he sees as including the convenience of arrangement, the control of the environment both physically and sociologically, the convenience for construction and correct balance between economic resources and cost.

Professor Page comes down heavily on the architectural profession for its failure in research. Much lip service, he says, is paid to the need to get post-graduate studies under way, but there is little sign from the profession that they are prepared to make their terms acceptable to potential students. 'At present,' he says, 'the RIBA, unlike many other comparable professional bodies, does not consider architectural research as counting towards their professional practice requirements. A higher degree does not command a higher salary. In the circumstances, not unnaturally, there is no great rush of architectural students to do research, and the situation is unlikely to change unless the RIBA is prepared to face its responsibilities in this sphere in a much more realistic way.' He is equally forthright in condemning the attitude in academic circles that 'building is not a University subject.' The building industry, he says, is far too large and far too important to be left academically in the cold. It is essential that the industry should have its share of the best technological brains in the country, and at the moment it is not getting it. He ascribes this to two reasons: first, empirical methods have been used for so long in the industry; second, professional men, particularly in the universities, have tended to be snobbish about building.

Finally, Professor Page gave an outline of his own particular choice of action in his new appointment. As his sphere is architectural education, he will select those aspects of building science which he believes will be most valuable to the architect. Believing that architecture wants a new human orientation, he is going to concentrate on the sciences which deal with man in relation to his environment. As he sees it, the relative failure so far of functionalist architecture has resulted from the fact that the architect's field of knowledge has been too narrow to define the human functions of a building adequately. 'We have had an æsthetic of functionalism instead of buildings that function. Architects must learn that what superficially looks right, may in fact be wrong in human terms.' We wish Professor Page all success in the task that lies before him in his appointment.

# Notes of the Week

## Two Appointments; Structural Achievement in Concrete; Architects' Party; Popularity of Ancient Monuments

TWO APPOINTMENTS of great importance were made on March 23—Mr. Edwin Chandler to the new post of Architect to the City of London, and Mr. Harry Weaver as General Secretary of the National Federation of Building Trades Operatives. There could hardly be a more important post than that of correlating the architecture and planning of the City, and Mr. Chandler, whose efficient and good-humoured conduct of Oxford's planning affairs since 1946 has won universal commendation, would seem just the man for the job. Our City fathers are quick to see the merits of a good case when it is well presented, and Mr. Chandler should quickly win their support. He is 46.

Equally popular is Mr. Weaver's appointment to follow Sir Richard Coppock—no easy task. But the new General Secretary goes in with the solid vote of 19 of the 20 unions within the Federation, and with a wide experience of industrial and labour affairs extending over 36 years. Mr. Weaver, who is 52, takes over in July, and will carry with him the good wishes of all who discern in building trade union affairs a fresh wind which comes from the quarter of national rather than sectional interest.

*Mr. Chandler*

*Mr. Weaver*

### Structural Achievement in Concrete

THE CASE for using structural concrete for multi-storeyed building is cogently put in a brochure 'Structural Achievement in Concrete' introduced to the Press last week by Mr. W. Kirby Laing on behalf of the Reinforced Concrete Association. Savings of between 5 and 10 per cent of the total building cost, construction times of a storey a week or better, suitability for structures of up to 500-ft. in height, the highest fire resistance and the lowest maintenance costs —these are some of the advantages of reinforced concrete claimed by the Association, which is one in which professional, scientific and industrial interests come together 'to promote, encourage and improve the science, art and practice of reinforced concrete design and construction. . . .'

Does 'to improve the science' involve the initiation of research? The Association does not think so, and has not the large funds that would be necessary; instead it collates and disseminates research done by its members, besides initiating symposia. One such meeting, on large-diameter bored piles, drew over 500 members and visitors recently.

* * *

IF RESEARCH is not to be initiated by bodies such as the RCA, who is to tackle some of the major subjects currently awaiting action? Research is at present done by two main agencies—by trade associations and individual members of a trade; and by the Building Research Station. Just occasionally a professional institution undertakes a project—an example was the gallant attempt by the Chartered Surveyors to find out why multi-storeyed construction should be so much more expensive than low structures. This kind of research costs time and money, but it is at least made freely available whereas research by, for instance, large contracting organisations is not unnaturally done for the firm's exclusive benefit. There remains the BRS, which many think does not take on sufficient projects of current industrial interest, and is often shy about publishing interim results.

* * *

IT IS DIFFICULT not to rest on the conclusion that there is too much wasteful duplication of research going on, and that in the resulting confusion many subjects are not receiving attention that could be of immediate value to the industry. We are, as Mr. Frederick Snow, the consulting engineer, has pointed out, paying twice over for much current research work; industry pays for it out of tax remissions and the BRS and other departments of DSIR are carried financially out of national revenue. Is it not time that the whole subject of research for building was looked at again, perhaps by a re-appointed Scientific Advisory Committee of the Ministry of Works?

### Architects' Party

ONE OF THE PROBLEMS of a personal nature that the designer, whether architect or engineer, unfailingly comes up against in later professional life is that the more success he has achieved the less time becomes available for the process of design. Administrative cares, in fact, leave little or no opportunity for doing the things for which he was trained —these joys must be left to others.

Every designer instinctively rebels against this state of affairs. The late C. H. James once said that he would never let his architectural practice expand beyond a point that he, with a half-dozen assistants, could well cope with. Graham Dawbarn has neatly solved the problem by dissociating himself from the executive side of his very large office, making for himself a special position which leaves him free to take a full part in the design of projects which interest him. Other senior architects have their own ways of coping but all have the same problem.

* * *

ENGINEERS HAVE THE SAME DIFFICULTIES, according to Mr. Ove Arup who was one of a large number of professional and other guests at the most lively annual party given by Sir John Burnet, Tait & Partners at Claridge's Hotel last week. Mr. Arup has what is probably the largest and happiest office in the country, but this is achieved by unremitting vigilance on the part of its head, which necessarily involves keeping in personal touch with staff. How to find time for design work which is his first love? This is the problem to which he has not yet found a solution. That he and others like him should do so, is important. If only for the benefit of the arts they practise, the accumulated experience of a professional lifetime should not be sublimated in administrative chores.

### Popularity of Ancient Monuments

WHATEVER they may think of modern architecture the public are certainly flocking in increasing numbers to ancient monuments, and in 1960 the record number of 6,798,200 people visited ancient monuments in Great Britain maintained by the Ministry of Works.

As always, the Tower of London was the most popular and attracted well over the million; and of its 1,182,100 sightseers who paid for admission, 629,300 paid extra to see the Crown Jewels. The State Apartments at Hampton Court Palace attracted 395,300, and Stonehenge kept up its attendances (308,900). First place among English castles was retained by Carisbrooke, with 151,900 visitors. In Wales, Caernarvon Castle was not only far the most popular monument but raised its attendance by almost a quarter to 204,900. The Scottish figures proved more static, Edinburgh Castle recording 442,900 paid admissions and the Palace of Holyroodhouse 225,200.

## Poet's Corner

SIR RICHARD COPPOCK, CBE, is to retire after forty years as General Secretary of the NFBTO.

Bushy brows, thick mat of hair,
Horn-rimmed specs and friendly stare—
  Possessor of a real vocation
  For rational negotiation;
Man of the people, strong and tough,
But made of the right human stuff;
  Patient, ardent, brusque or quick
  Sir Richard (better known as Dick)
Has shouldered more than forty years
The Operatives' hopes and fears.
  (At County Hall they found a rare man
  When he presided there as Chairman.)
Time brings its bitter-sweet requirement—
From industry's affairs, retirement;
  In all the problems in and round it
  He leaves it better than he found it!
And though we sever with a sigh,
It's *au revoir* and not goodbye.
  Long life to you and thankfulness
  For all you've done for us—God Bless!

ANON.

# Recent University Building in Oxford

## Changes in Architectural Taste

BY DAVID BOOTH, FRIBA, FSIA

THE SHEER VOLUME OF BUILDING under way in Oxford at the present time must be without parallel in the history of the university and the city. The expansion of the science area, major new buildings in many colleges, the vast repair programme financed by the Historic Buildings Appeal, the city's ambitious housing schemes, new factory buildings for the motor, printing and paper industries, the activities of the hospitals boards, must, if anyone has bothered to add it up, produce a staggeringly high total value of current building work. Nor does this situation seem likely to end suddenly. Large projects are in the pipeline for university, local authority and hospital building and a decision on the road problem, which can now hardly be avoided, will release the St. Ebbe's area, patiently awaiting redevelopment for the past thirty years, for comprehensive rebuilding. This will be the biggest, as it is certainly the most urgent, section of the city's post-war redevelopment and, apart from the provisions of badly-needed central residential accommodation, it will provide opportunities for buildings for commercial purposes, a use-class which has been virtually throttled in Oxford since 1939.

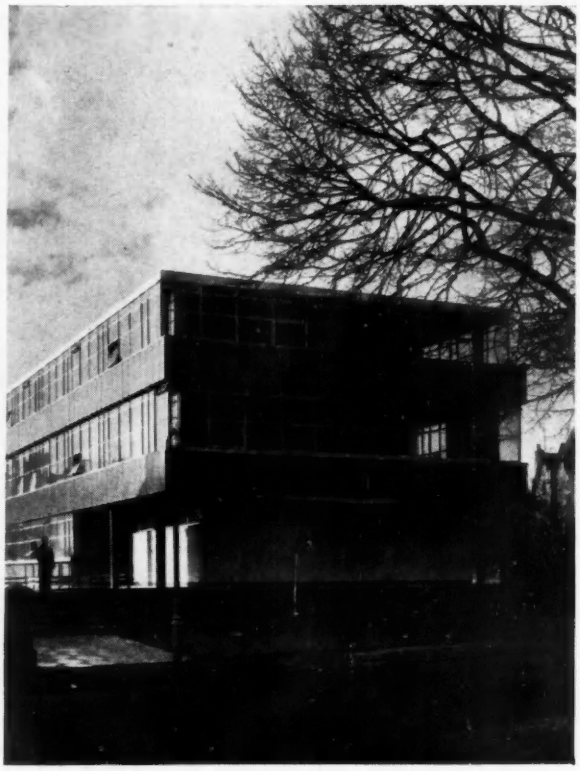
With this vigorous outburst of construction has gone a remarkable change in architectural taste which must astonish those who were familiar with the Oxford architectural scene ten, or even five, years ago. As far as the university is concerned this change has been effected (as perhaps all changes of taste are) by a small number of determined men and does not, to judge from casual listening in senior common rooms, necessarily represent an enthusiastic mass-conversion. But, with few exceptions, the stylistic victory is complete and the great majority of university build-

*2. Library, Lady Margaret Hall, by Raymond Erith, ARA*

*1. Provost's Lodgings, The Queen's College, by Raymond Erith, ARA*

*3. Principal's House, St. Hilda's College, by Sir Albert Richardson, PPRA*

*4. Department of Anatomy, by Lanchester and Lodge*



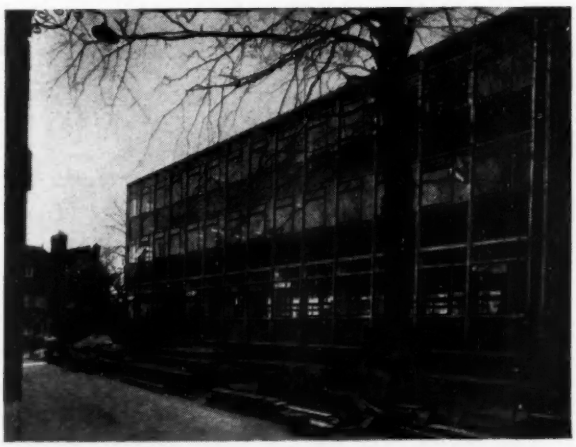
*6. Department of Metallurgy, by Ramsey, Murray, White and Ward*

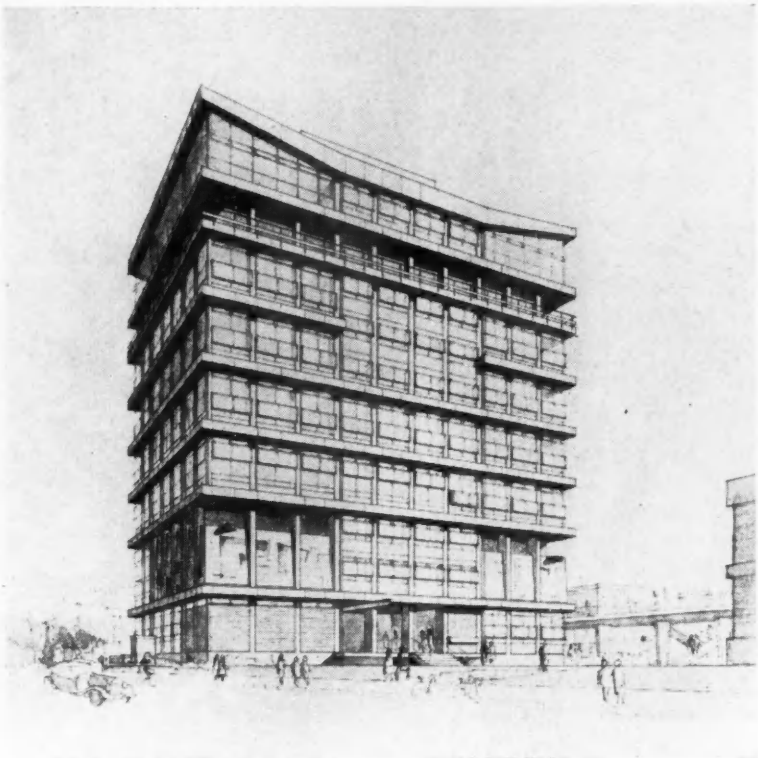
ings recently completed, or in progress, is what could a few years ago have been called 'uncompromisingly modern' and is probably accepted by the university as such, although, in the rapid movement of architectural fashion, some recent work, in spite of (or perhaps even because of) pilotis and lavish glass, seems to be 'out' rather than 'in.'

The few current Oxford schemes in the historic styles include The Provost's lodgings for The Queen's College and the library for Lady Margaret Hall, both by Raymond Erith; The Principal's house and proposed new buildings for St. Hilda's by Sir Albert Richardson and Eric Houfe; and new buildings for Mansfield College by Thomas Rayson. Erith is exceptional among contemporary architects for his fresh but scholarly handling of the late Renaissance design formulas. His new building for Queen's (illustration 1), if one can forget the current dogmas about progressive design, is clearly appropriate to its setting, although the rusticated façade to New College Lane seems, to this observer at least, to have been

*5. Extensions to Dyson-Perrins Laboratory, by Ramsey, Murray, White and Ward*

*7. Department of Pharmacology, Gollins, Melvin and Ward*





*8. Department of Engineering, by Ramsey, Murray, White and Ward*

conceived on an altogether wrong scale. Rustication demands an heroic scale; on the tiny scale of this house it has the quality of an intimate stage set rather than a real building.

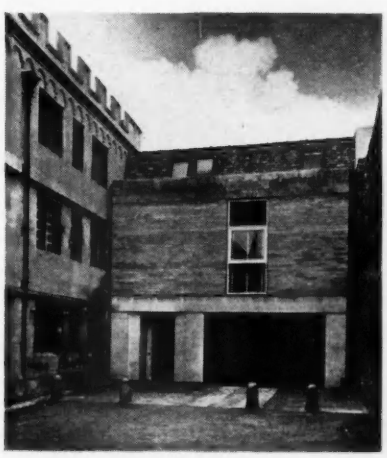
The library for Lady Margaret Hall (illustration 2) continues a group of buildings begun by Sir Reginald Blomfield and carried on by Sir Giles Gilbert Scott, whose chapel was much admired in its day. As in the case of the Queen's lodgings, the new library building contains some curious tricks of scale, particularly in the dimensions of the stone arcade on the ground floor and in the use of large lunette windows in the top storey, above unusually small rectangular openings. In the group of Lady Margaret Hall buildings it is the orthodox full-blooded Queen Anne of Blomfield which seems to come out best; the personal and much diluted mixture offered by both his successors, while in many ways more thoughtful and sensitive, is less nourishing. The Principal's house at St. Hilda's, by Sir Albert Richardson (illustration 3) is a characteristic work.

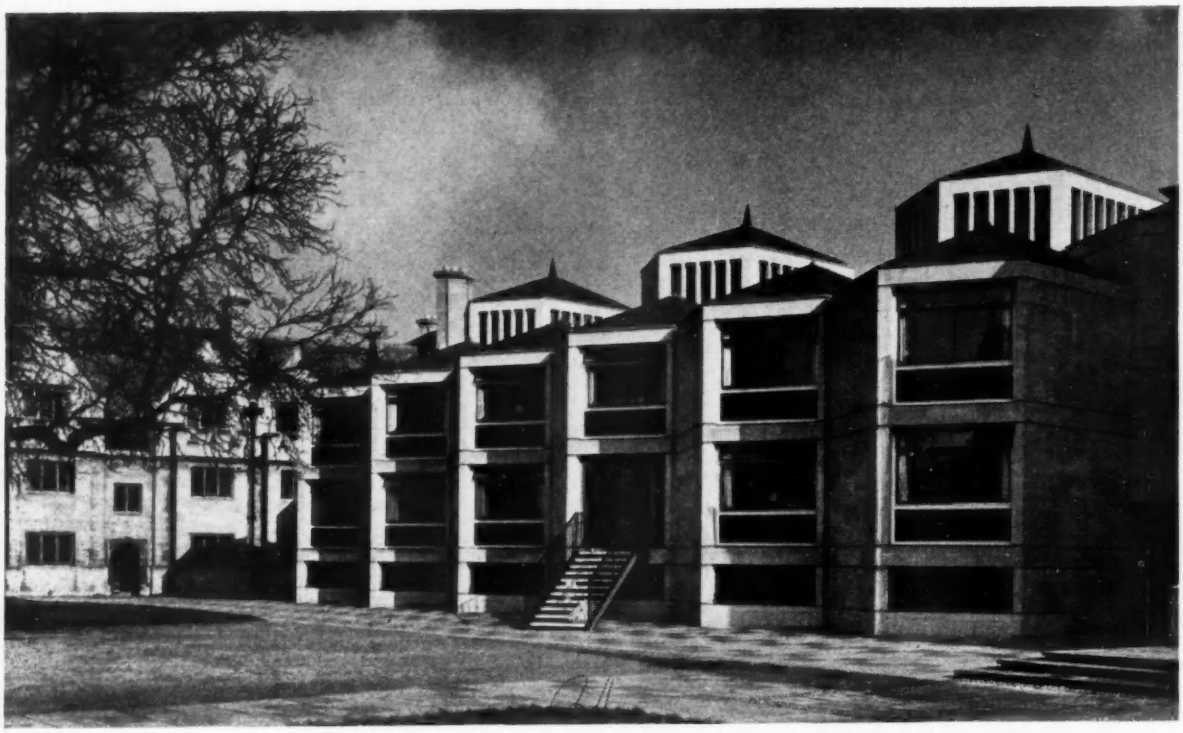
The appointment of Ramsey, Murray, White and Ward to carry out extensions and new buildings in the Science Area and to plan the layout of the Keble Road triangle was one of the first of the new design dispensations, which may be contrasted with the recently completed School of Anatomy (illustration 4) by Lanchester and Lodge, which is typical of the buildings erected in this area in the decade following the war. Ramsey, Murray, White and Ward have been responsible for extensions to the Dyson-Perrins laboratory, the new Metallurgy department and the new Microbiology building, all completed and in occupation, and the new Engineering laboratory, under construction.

The Science Area, tightly packed between the Parks, which it constantly threatens, and South Parks Road, was a jungle of ill-assorted buildings long before the arrival of Ramsey, Murray, White and Ward, and any new buildings in this area must unavoidably add to the confusion. In this respect the extensions and the lecture room to the Dyson-Perrins Laboratory (illustration 5) presented a difficult problem in its placing between existing buildings. The glass wall formula which has been used, with the lecture room perched up on legs, has a lightness and open-

*9. Department of Biochemistry (Microbiology building), by Ramsey, Murray, White and Ward*

*10. Presidents Lodgings, Corpus Christi College, by Architects Co-Partnership*





*11. New buildings, St. John's College, by Architects Co-Partnership*

ness which makes the most of the space available and avoids the feeling of oppression which more solid building would have given in this situation.

A similar formula has been used for the Metallurgy department (illustration 6). Both these buildings have an unsympathetic metallic slickness and a determined restlessness in composition and may be compared with the new Pharmacology department (illustration 7) by Gollins, Melvin and Ward, a building using an orthodox glass curtain wall technique and which, while not devoid of slickness, achieves a feeling of more detached calm in its repetitive simplicity. The colour in this building is unusually subtle and successful.

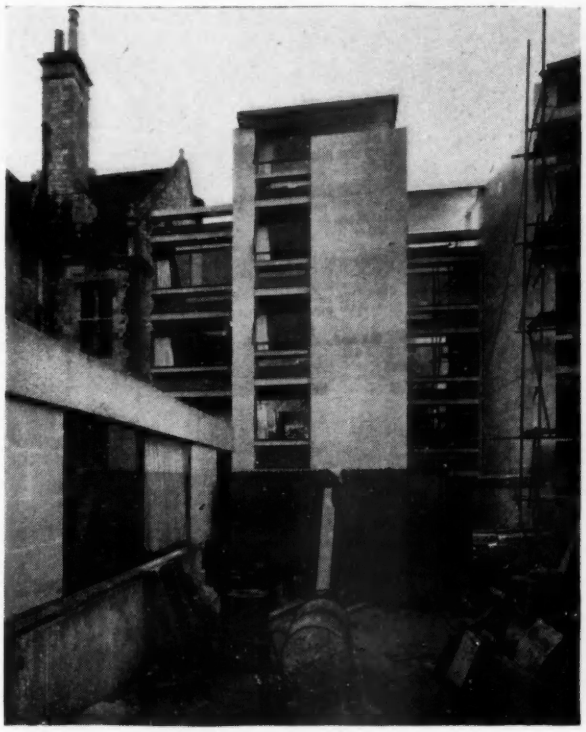
The design of the new department of Engineering (illustration 8), which has not yet emerged from a vast hole beside the Banbury Road, is clearly from the same stable as its neighbour, the Metallurgy department, but in the Microbiology building (illustration 9), sited in the Science area, Ramsey, Murray, White and Ward, have produced a building which is not only closer to current architectural design fashions, but is, one guesses, functionally better suited for its purpose than the continuous glass façades of the earlier buildings.

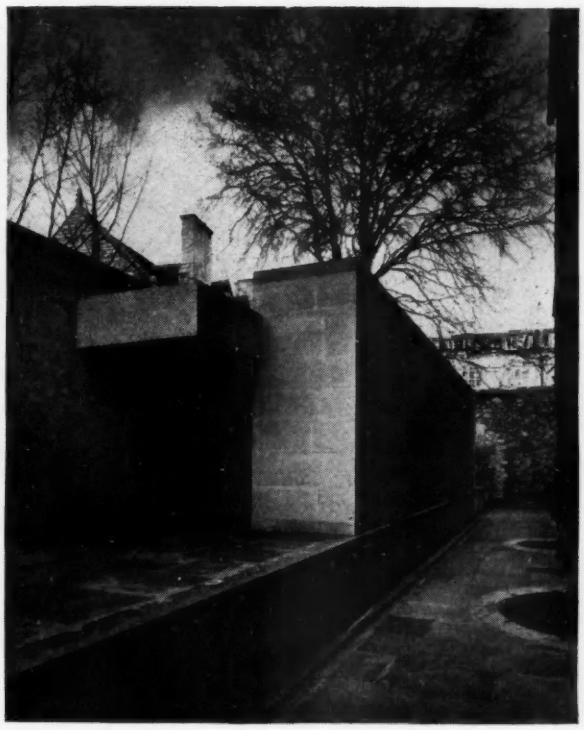
*14. New building, Worcester College, by Sir Hugh Casson and Neville Conder*

## Work of Virtuosity

The remodelled President's lodgings at Corpus Christi (illustration 10) by the Architects Co-Partnership was almost the first, as it is still probably the best, example of contemporary design in College building. The same architects' new building for St. John's (illustration 11) has been highly and deservedly praised and it is indeed a work of considerable virtuosity although, in its setting, possibly too spiky and assertive.

In Brasenose, Powell and Moya have





*12, 13. New buildings, Brasenose College, Powell and Moya*

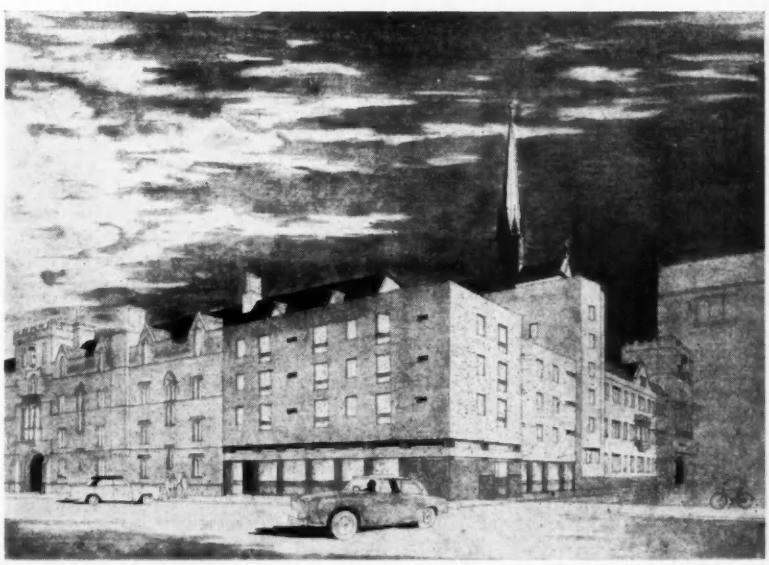
been responsible for extensions on a restricted and difficult site. The scheme, which is still in progress, consists of two parts, and the principal block of rooms (illustration 12) has the skill and elegance which one would expect; but this unfortunately will hardly be seen by the average visitor to the College who will be confronted by an oppressively mausolean single-storey structure (illustration 13) which he will be surprised to hear contains, in fact, sets of rooms. At Worcester a new block of rooms by Casson and Conder (illustration 14) is nearing completion. This is a lively building, of the school of new eclecticism, and is interesting in its use of traditional structural elements in the brickwork, in the form of flat arches, corbels, offsets and exposed lintels, but in other respects the brickwork is treated as a non-structural veneer, and the result, one feels, would have been better had the treatment been more consistent.

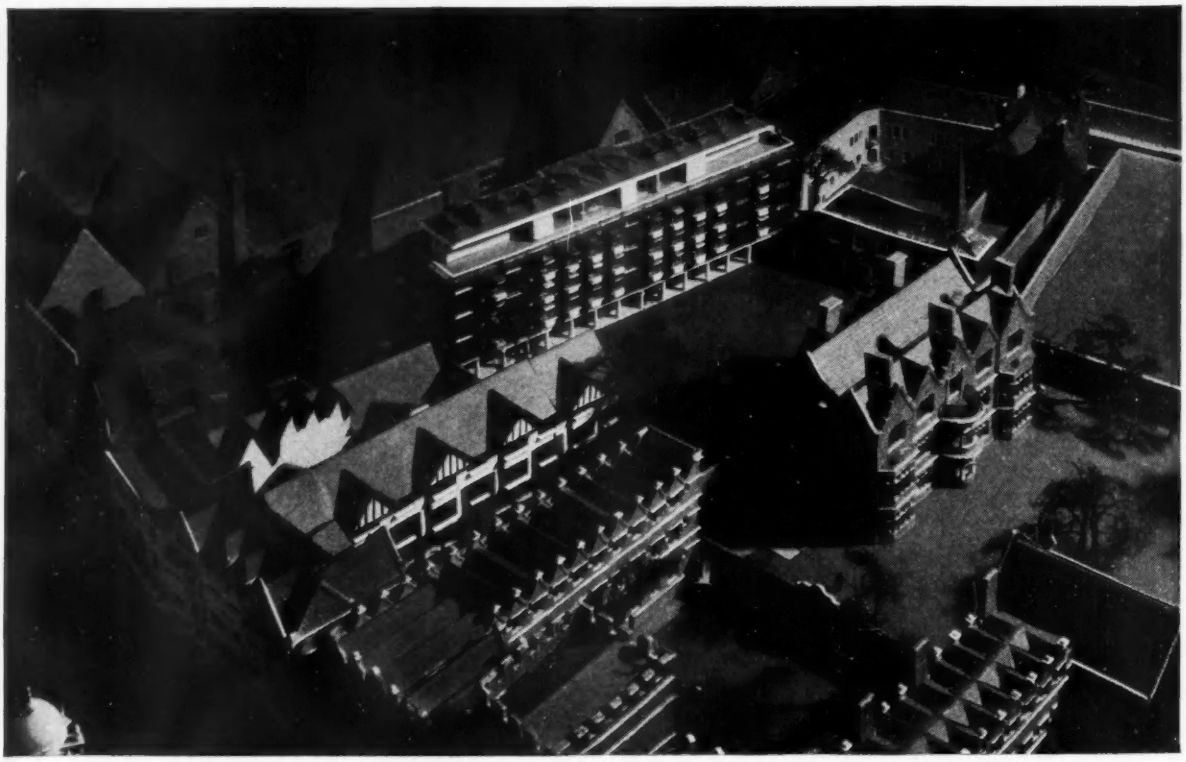
## Fad for Jagged Roofs

A new building for University College (illustration 15) by Robert Matthew and Johnson-Marshall has been begun but is hardly above ground. This will eventually form one side of a large new quad, and from the model the new building clearly relates well to the existing buildings. The building will be in brick ' tonally acceptable to the surrounding buildings ' and the roof has been designed ' to provide a small contribution to the skyline in the area,' but it is possible to doubt whether the current fad for jagged roofs in Oxford is either necessary or wise, and in this case the penthouse and roof seems likely to be an incongruous element on top of an excellent building.

Of the several projects for University buildings which have been announced in the Press and are due

*16. Proposed new building, Exeter College, by Lionel Brett*

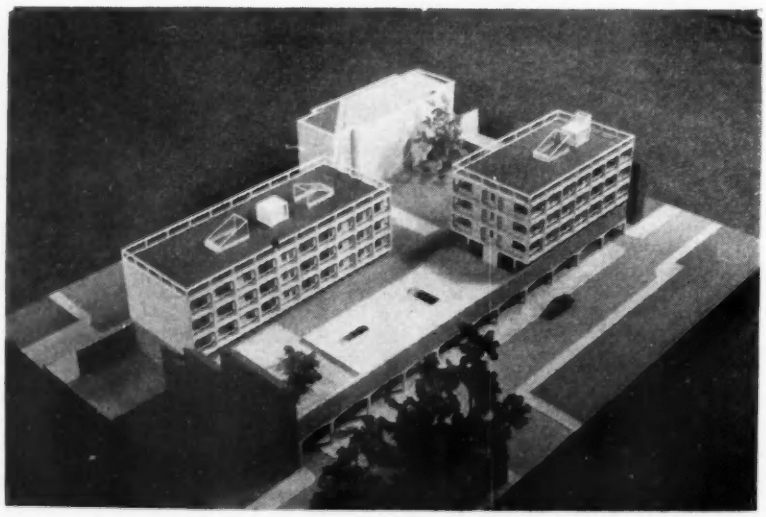




*15. New building, University College, by Robert Matthew and Johnson-Marshall*

shortly to begin, two are illustrated. An extension for Exeter College (illustration 16) by Lionel Brett, on the corner of Broad Street and Turl, shows a design which has gained in breadth and simplicity since it was first exhibited. New buildings for Somerville (illustration 17) by Ove Arup and Partners will be sited on Little Clarendon Street and include shops as well as college accommodation. The design of the buildings is based on a fully expressed concrete frame. While the economics of the continuous shallow exposed galleries may be very questionable, the system has great merits of vigour and directness, and is refreshingly free from fashionable affectations. This promises to be among the best of new buildings in Oxford.

*17. Proposed new buildings, Somerville College, by Ove Arup and Partners*



## The Builders

The builders for the various projects either completed or in progress are:

Department of Metallurgy, W. J. Whittall & Son Ltd.; Extensions to Dyson-Perrins Lab. & Lecture Hall, Benfield & Loxley Ltd.; Department of Human Anatomy, W. E. Chivers & Sons Ltd.; President's Lodgings, Corpus Christi, Hinkins & Frewin Ltd.; Undergraduates' Rooms, St. John's College, Benfield & Loxley Ltd.; Principal's House, St. Hilda's College, Knowles & Son (Oxford) Ltd.; the Microbiology building, James Longley & Co. Ltd.; Undergraduates' Rooms, BNC, Norman Collisson (Contractors) Ltd.; Undergraduates' Rooms, Worcester College, Dove Bros.; Department of Pharmacology, Benfield & Loxley Ltd.; the Department of Engineering (Keble-road Triangle), James Longley & Co. Ltd.; Library, Lady Margaret Hall, W. J. Whittall & Son Ltd.; Provost's Lodgings, The Queen's College, Benfield & Loxley Ltd.

**'The Cambridge Scene'**

*An article under this heading, describing and commenting on new University and College building in Cambridge, by Mr. David Croghan, appeared in 'The Builder' of January 20, 1961*

# New Towns Within Cities

## Suggestions of Dealing with the Problems of Sprawl and Central Area Congestion

SUGGESTIONS for creating new towns inside existing cities to help solve the problems which, he alleged, had only been partially solved by decentralisation and the building of the New Towns, were put forward at a joint meeting of the Housing Centre Trust and SPUR at the Housing Centre on February 21, by MR. WALTER BOR, ARIBA, AMTPI.

He said that two-fifths of the population of Great Britain was living in seven great conurbations. While low density sprawl continued on the outskirts, the central areas suffered from strangulation at the heart. The policy of decentralisation of industries and population to a series of new towns 15 to 30 miles away from the conurbations had not proved as effective as had been hoped for and had left the problems within our conurbations largely unsolved. A policy was now urgently required of tackling the problems of sprawl and central area congestion by forming new towns within cities, based on internal decentralisation.

While it was indisputable that overspill problems were inherent in the redevelopment of congested parts of the conurbations and in the provision of more open spaces, larger school sites and wider roads, the removal of people and jobs to places far away from the cities was not the only answer. There were historic and economic reasons for the present unbalanced distribution of densities between the central areas and the outskirts of the conurbations, but by a determined policy of judicious planning this unbalance could be alleviated, if not completely rectified.

Apart from the hopeless congestion in the central areas, there were other inconveniences inherent in the present pyramidal structure—long and tedious journeys to work, an amorphous mass of suburban housing without identity or character, with little life of its own, and at best with only a local shopping centre. If the central areas of our conurbations were to be revitalised and brought up to date their spread into the neighbouring residential areas must be strictly curtailed and the existing central areas comprehensively redeveloped in stages.

### Redistribution of Densities

The best results could be achieved only if less building bulk and more public space were provided on redevelopment. It followed that some of the bulk, especially that in the form of office blocks with a high employment factor, must be moved elsewhere. If this excess bulk and places of work could be built in carefully selected positions near the residential communities (where land values were considerably lower than in the central areas) a start could be made with the redistribution of bulk and densities by decentralising within cities. The single enormous pyramid would thus be modified to a range of smaller pyramids, with one bigger one at the centre.

The solution of the problem of the new town centres would have to be based on an analysis of the whole of the conurbation. Abercrombie, in his 1943 County of London Plan, envisaged a new community structure based on the small villages and towns which existed independently prior to the great sprawl. He defined that clearly by linear open spaces along the main lines of communication. This eminently sound policy, said Mr. Bor, should be investigated in detail and put into effect where it was still found to be valid.

In the conurbations of the North and Midlands, on the other hand, it might be found that there were only a few, if any, of such historic communities and centres and these would have to be actually defined and created.

Mr. Bor then enumerated the chief considerations to be borne in mind when selecting new towns within cities. One would be good transport facilities, an adequate road network to carry additional traffic to the sub-centres and also to link these up with one another by a motor way, circular tube railways or monorail, so that commuters could reach the outer residential areas without difficulty. The distance between the proposed new town centres and the central area must not be too small. If the new town centres were too close to the central area the two might eventually merge and thus an even larger central area would result.

### New Town Centres

The new town centres should be built up in the first instance in areas which at present are under-developed or even declining. Great care should be taken not to locate the new town centres too close to existing thriving suburban centres with a great pull. Where they competed with existing centres new centres should be located within areas which at present were badly in need of employment and other facilities.

Once the location of new town centres was settled, concluded Mr. Bor, a decision must be made on their form and function. Their character should afford a multiplicity of uses ranging from shopping, commerce and industry to cultural entertainment and high density residential. Visually the character of these centres would greatly be enhanced by the judicious use of tall towers of flats and offices which would form dramatic groups and which would pinpoint the centres from a great distance. The comprehensive redevelopment of such areas as town centres should be based on the complete segregation of vehicles from pedestrians.

*** An illustration of a scheme for a shopping centre in Oxford-street, London, which follows this principle is on page 607.—ED.

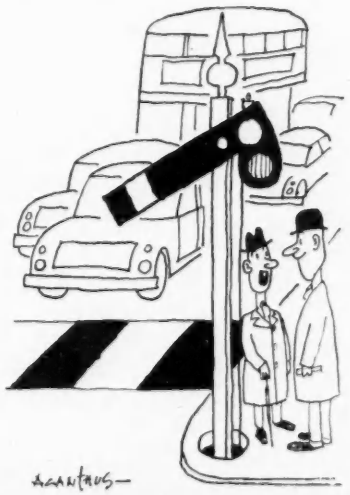
# Letters to the Editor

## Design of County Hall ; Reconstruction of the Dolphin Inn

SIR,—I am one of a rapidly disappearing generation who remembers the competition for the LCC Building, and who had some very small connection with Mr. Ralph Knott's office at that time.

I was a traveller in the metal casement business and possibly saw Mr. Knott from a somewhat different angle to that of his professional colleagues and assistants. My recollection is that he was a man who had full confidence in himself. He knew exactly what he wanted and spared himself no trouble to get it. I cannot conceive that in matters of architectural design he depended, or had any need to depend, on a lead from other people. After all, he won the competition, and my experience of calling on architects as a traveller for some ten years or more is that architects who can win competitions are a race apart from the general run. Their names should always be printed in heavy type in the lists of members of the RIBA, and they should be paid 50 per cent above the normal fee. They are worth it!

THOMAS BRADDOCK [FRIBA],
14 Great Smith-street, SW1.



*". . . and think of the money they'll make building over the railways!"*

### Reconstruction of the Dolphin Inn, Norwich

SIR,—Whilst fully agreeing with the delightful reconstruction of the exterior of this building, illustrated in 'The Builder' of March 17, do you not agree that the incorporation of a date '1615' without reference to rebuilding is indirect and may be misleading to those in the building industry who come after us in, say, 300 years' time?

J. S. JENKINS [BE, ARICS],
110 Park-st., London, W1.

# Award House

## House Beautiful Competition

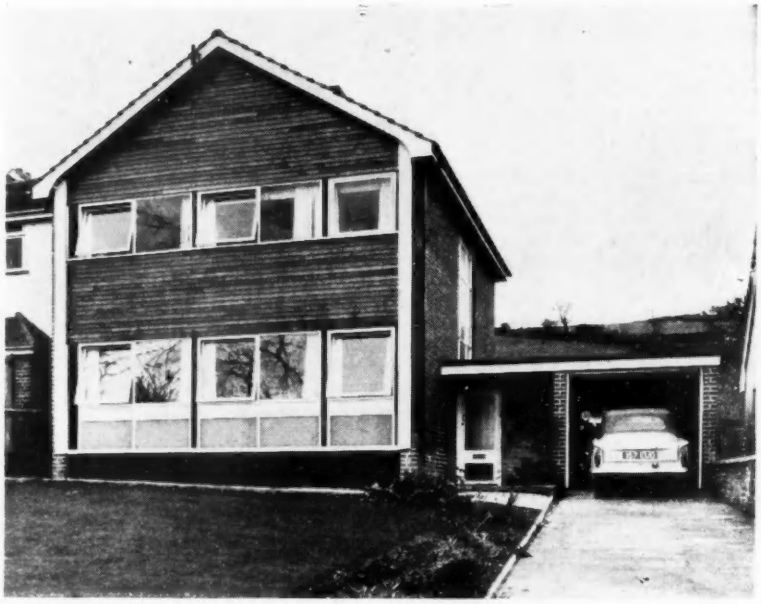
MERVYN SEAL, ARIBA, architect
M. P. KENT LTD., general contractors

A BRONZE PLAQUE was presented this month to the winner of the House Beautiful National Award Contest. This contest, which is to be an annual one, is open to speculative builders, and its aim is to encourage builders to make fresh advances in house design. An important rule in the contest is that the design submitted should actually have been built and be a standard type of house produced by the competitor. The entries were judged by a panel comprising representatives from the Town and Country Planning Association, Building Societies Association, Federation of Women's Institutes and the Townswomen's Guilds. In the final assessment 25 designs were considered, four of which were highly commended. The houses were judged on five points: the general planning, economical use of space, aesthetic qualities, construction and finishes, and size in relation to cost.

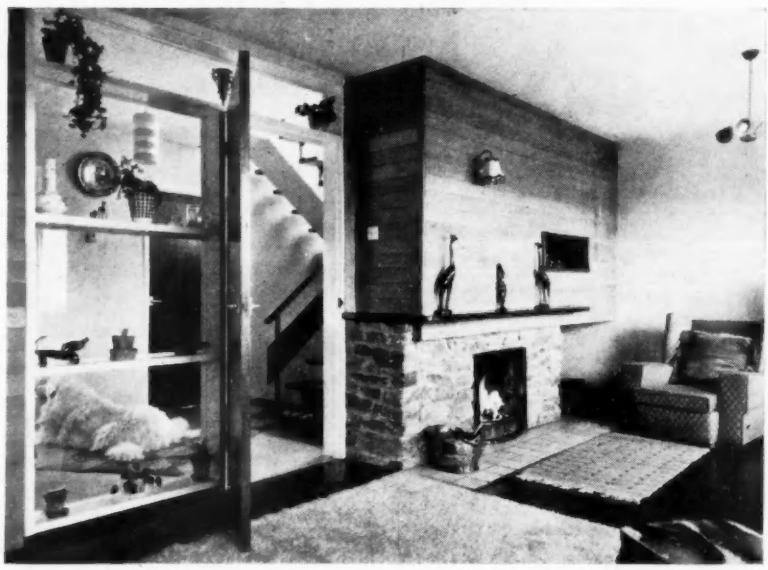
The award house, type H1, by M. P. Kent Ltd., is at Brixham, Devon. Total floor space including garage is 1,535 sq. ft., and the selling price, excluding land, is £3,800. Construction is of cavity brick crosswalls with timber infill walls. Finishes include random rubble and timber faced fireplace, mahogany open-tread staircase, and plywood flush doors. Fittings include a double sink unit and high-level cupboards, 21 ft. bookcase, vanity table and drawers in bedroom 4, and a workroom bench. Heating is electric under-floor.

On receiving the award Mr. Kent commented on a disappointing feature of the competition, namely, that no contributions were invited for higher density developments. Perhaps this could be remedied next year, he said.

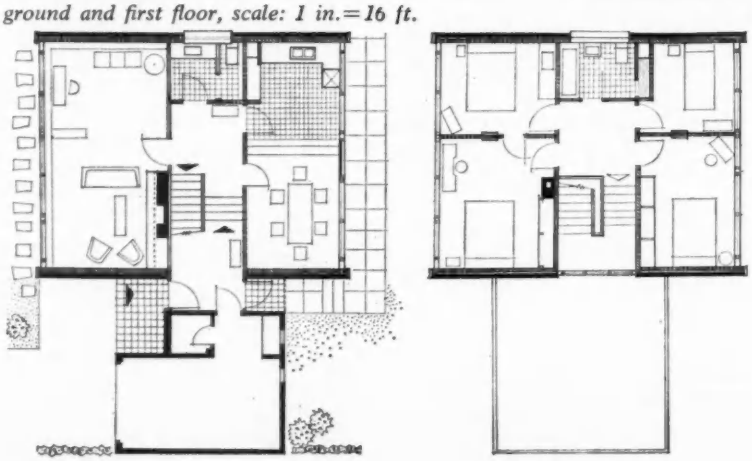
The four selected designs were: 'Daydream,' highly commended, built by Roger Day, LIOB, of Portsmouth; 'Director,' highly commended, built by Bryant Estates Ltd., of Birmingham; 'Type 4,' Fourth Award House, built by Hampson & Kemp Ltd., of Manchester; 'Warren 4B12,' Fifth Award House, built by Bailey (Builders & Contractors) Ltd., of New Malden, Surrey.



*above, main elevation; below, lounge and glazed screen to hall*

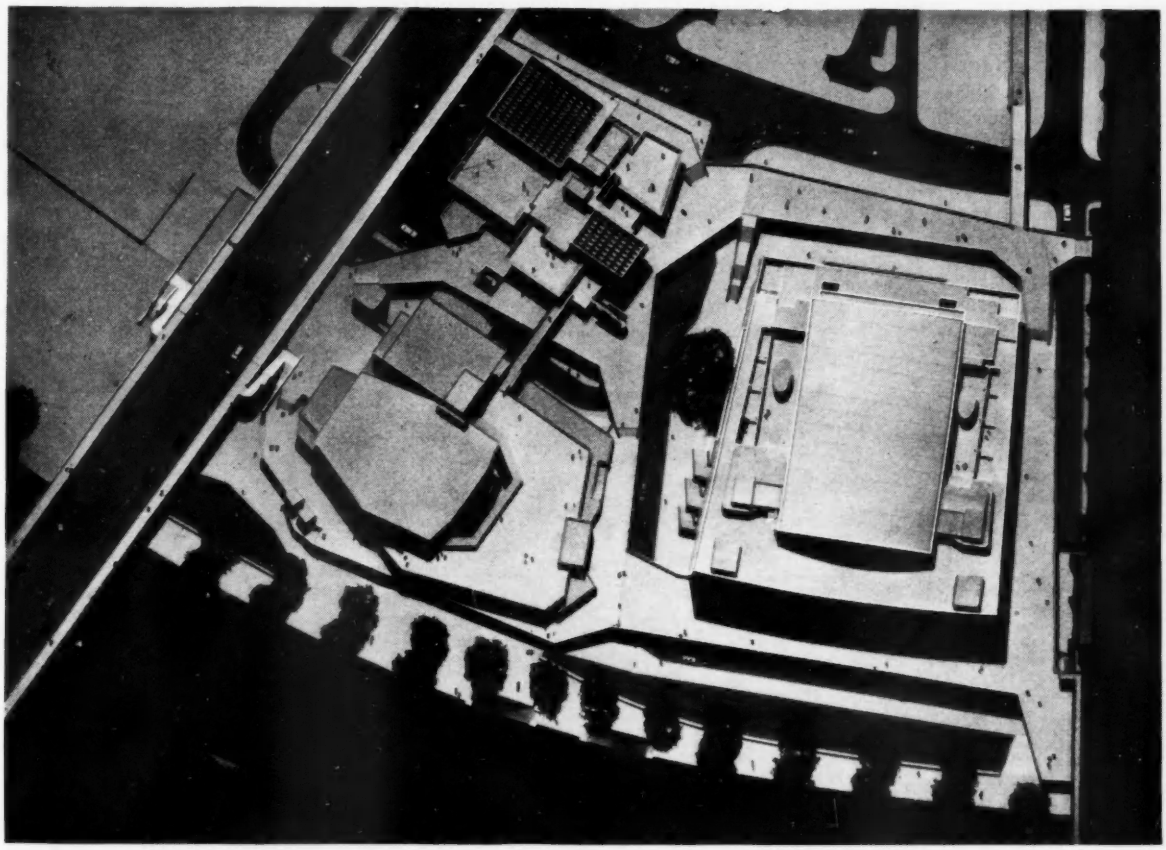


*ground and first floor, scale: 1 in.=16 ft.*

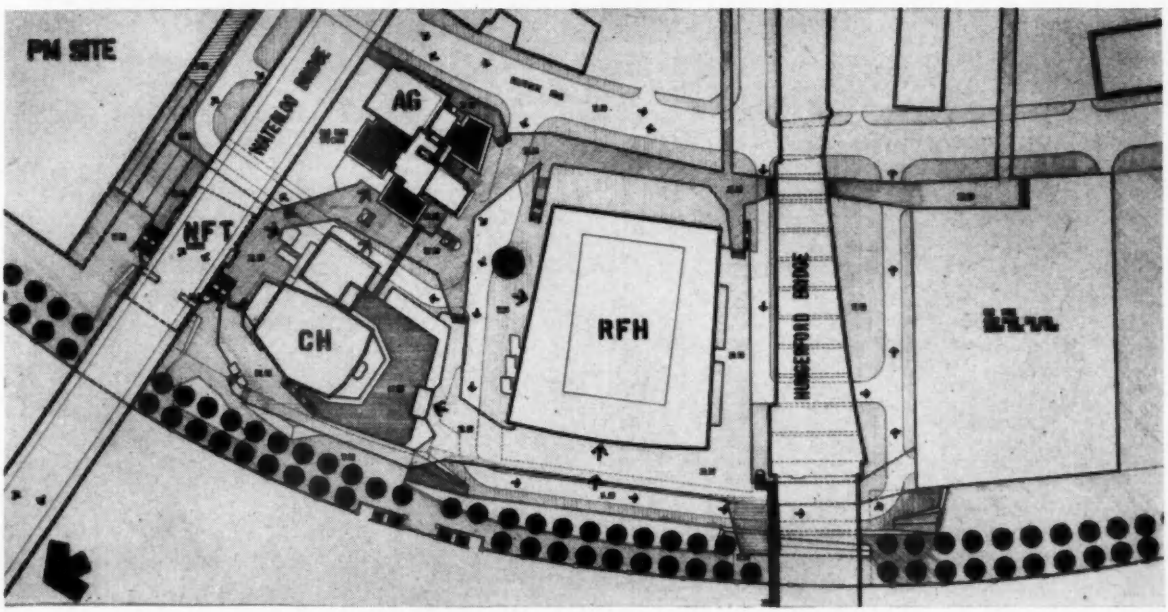


# South Bank Development

HUBERT BENNETT, architect to the LCC
OVE ARUP & PARTNERS, consulting engineers (South Bank)
SCOTT & WILSON, KIRKPATRICK & PARTNERS, structural engineers (Royal Festival Hall)



*model and site plan of proposed concert hall and art gallery in relation to the Festival Hall*



THIS SCHEME for completing the South Bank Development between Hungerford Bridge and Waterloo Bridge was submitted to the Council for approval on March 28. The Festival Hall will be completed, a smaller concert hall seating 1,100 and recital room seating 400, and an art gallery, will be built.

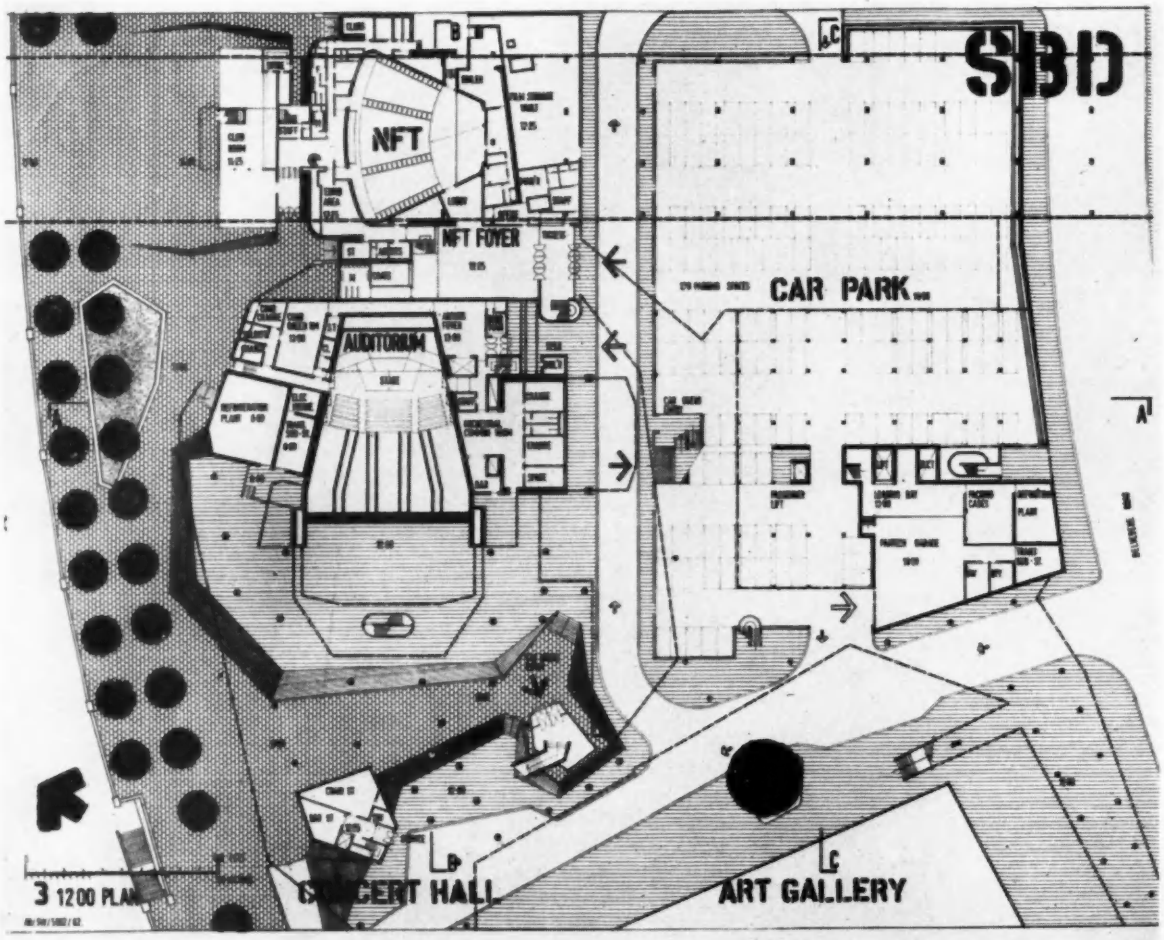
The approaches to the area have also been redesigned, because of the need to segregate vehicular and pedestrian traffic. This is achieved by two pedestrian systems from Waterloo Station. Upper level terraces will connect the three buildings and give access to Waterloo Bridge, Hungerford footbridge and Waterloo station free from vehicular traffic. These terraces will add to the open space available to the public and form a continuous pedestrian promenade. Terraces at still higher level (over the lower level of the exhibition gallery and the foyer of the small concert hall) will provide a secondary access from Waterloo Bridge to the South Bank, and spacious observation and seating areas away from the more busy lower levels.

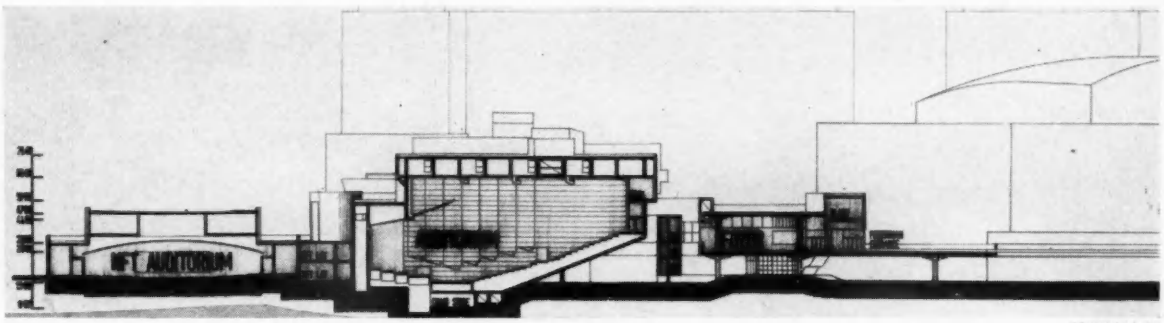
Vehicular access to the buildings and car parks will be provided by two loop-roads stemming from Belvedere-road, the upstream loop serving Royal Festival Hall, and passing under Hungerford Bridge and returning on the upstream side of the railway viaduct, and the downstream loop passing between, and serving the new concert hall and exhibition gallery and the repositioned entrance to the National Film Theatre, passing under Waterloo Bridge and returning to Belvedere-road. The riverside gardens will be reshaped and there will be a continuous promenade through an avenue of trees between the County Hall and Waterloo Bridge. The estimated cost is £3,704,000.

Extensions of the Festival Hall both towards the river and Belvedere-road are planned. The main entrances to the hall will be resited on the river front, served at ground level by the new loop road for car access and at terrace level by a pedestrian walkway. The riverside extension will incorporate an enlarged restaurant at the upper level and a new self-service restaurant on the ground floor. Four new 38-passenger lifts, two on each side of the Hall, will provide a connection between the entrance foyers and all parts of the auditorium.

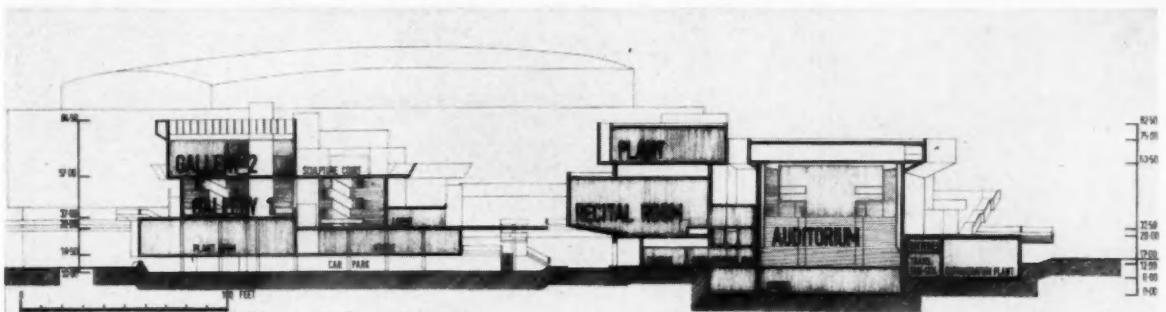
The small concert hall has been designed in close collaboration with the Building Research Station, the music panel of the Arts Council and other eminent musicians, with Mr. Hugh Creighton as acoustic consultant. The design of the main auditorium has been conditioned by the desire to achieve a reverberation period that is appreciably longer than that of the Royal Festival Hall, and to obtain a substantial degree of sound insulation against external noise. The structure is an r.c. box with 15 in. thick walls. to provide an acoustic barrier.

The exhibition gallery has been de-

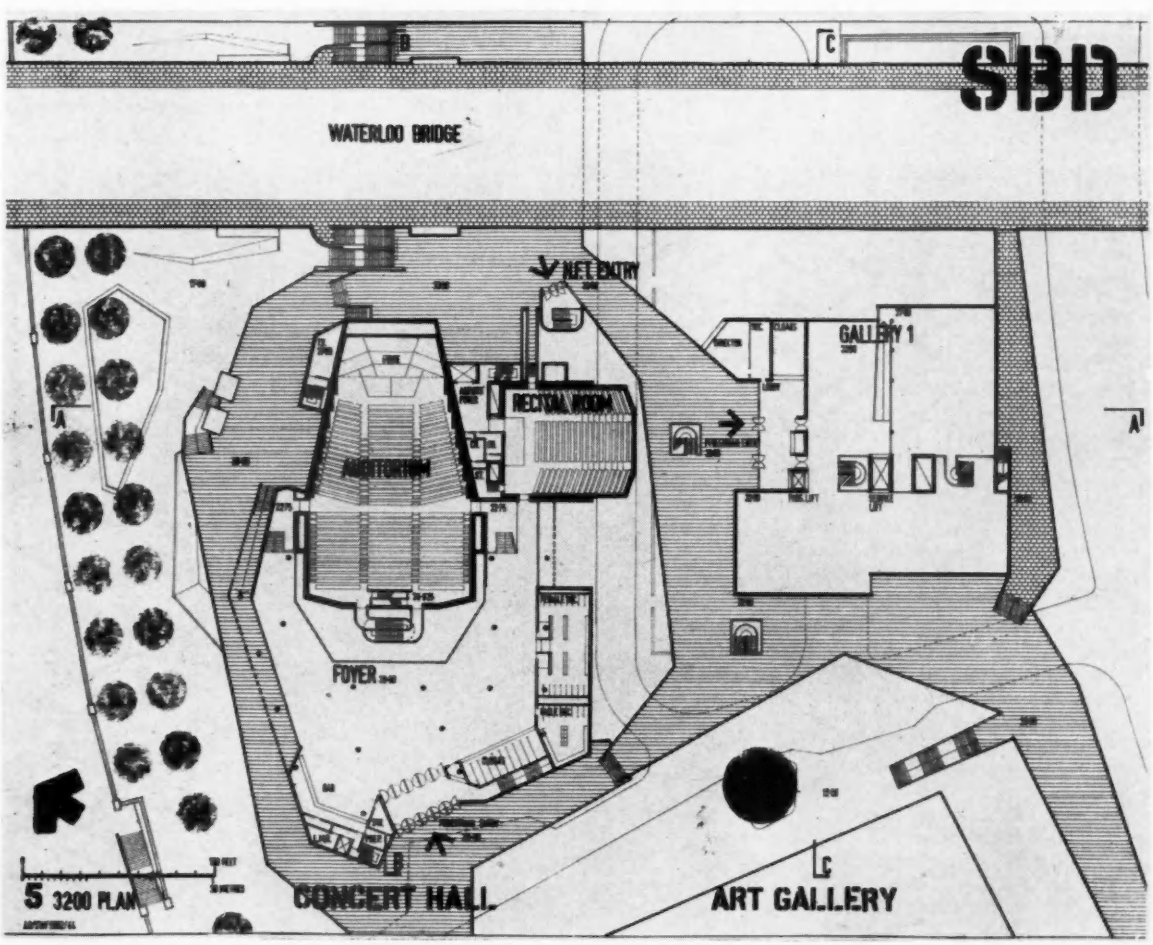




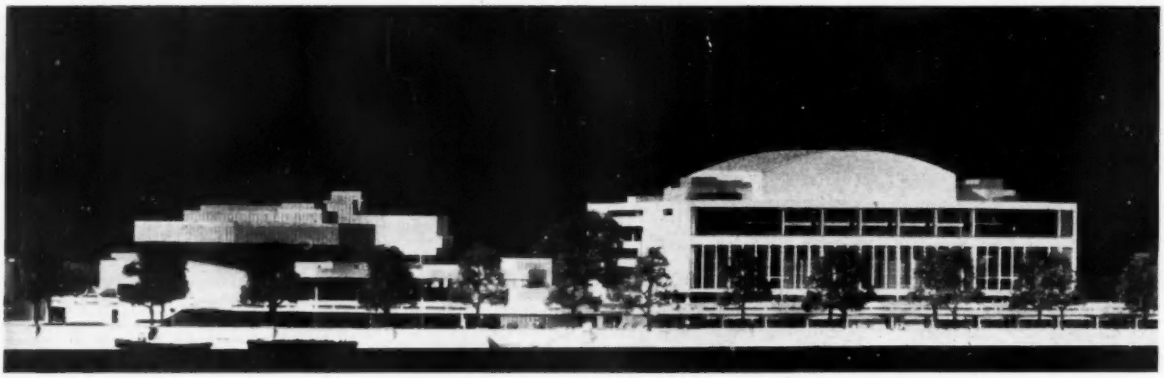

SECTION BB

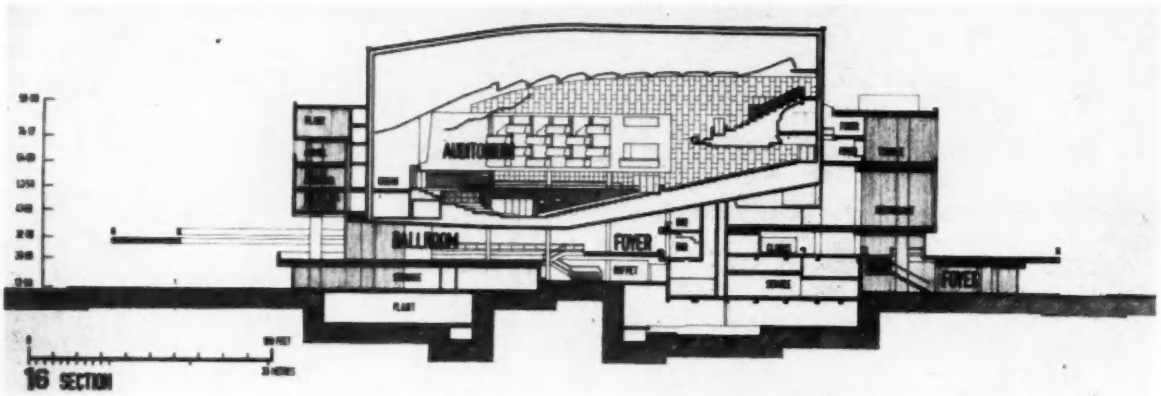



8 SECTION AA ART GALLERY CONCERT HALL



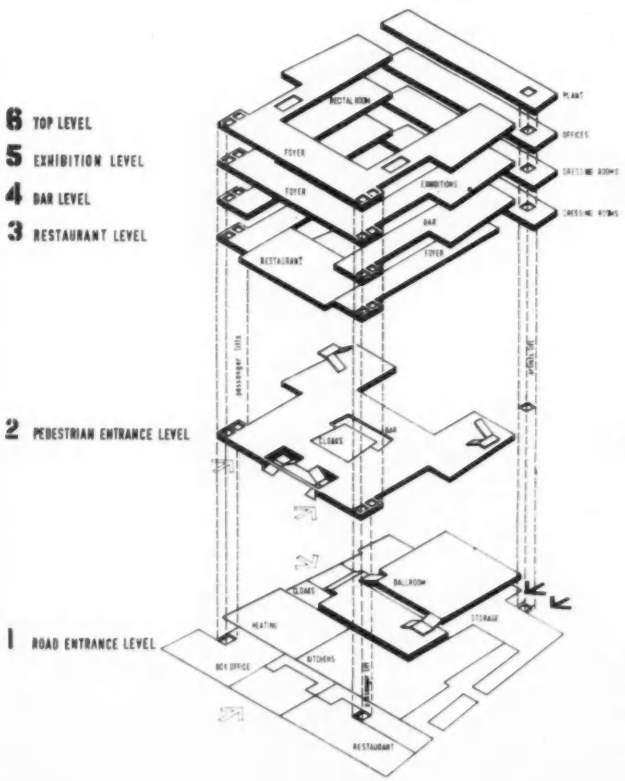

5 3200 PLAN



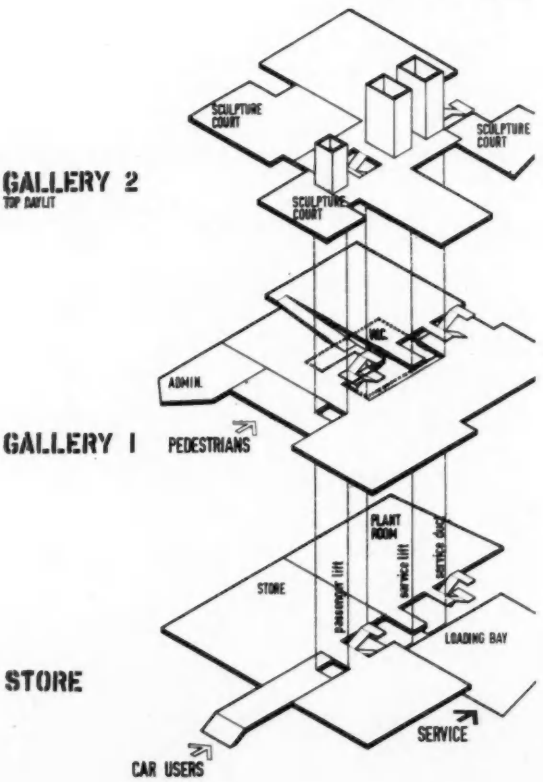


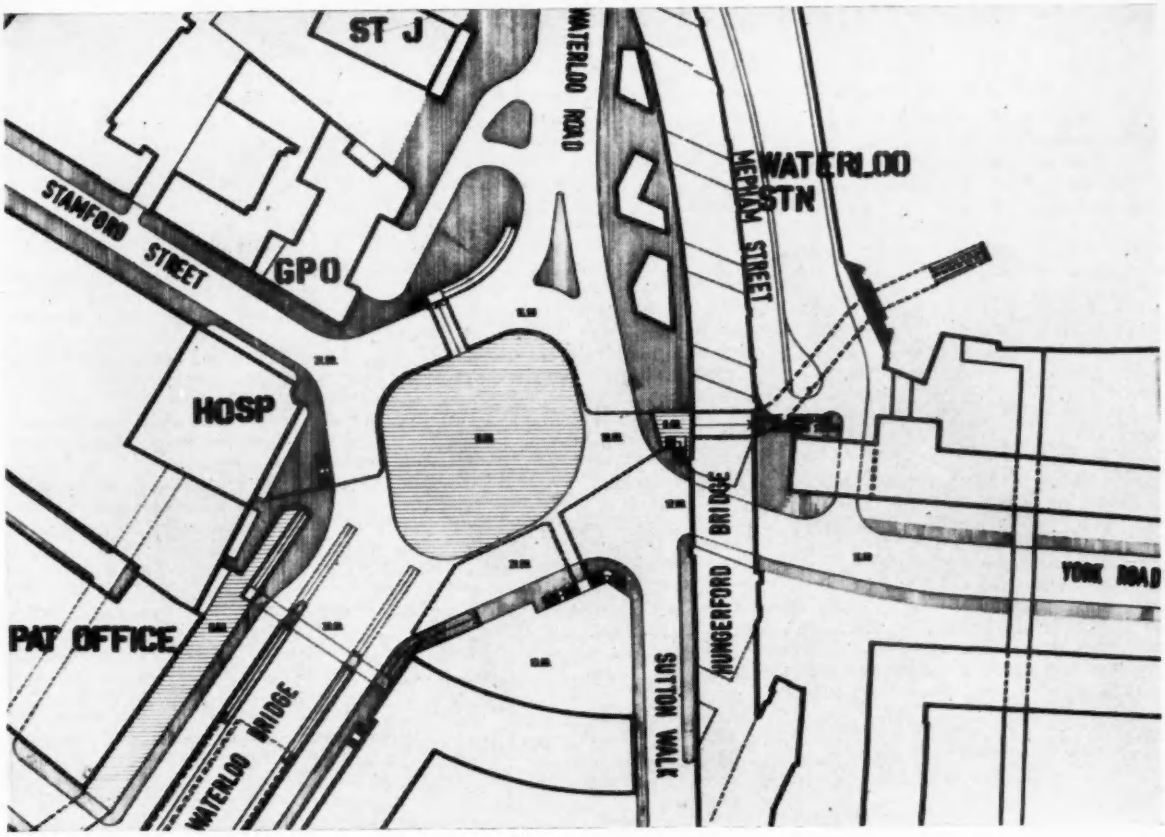

*Model and section of the completed Festival Hall*

*Festival Hall diagram*



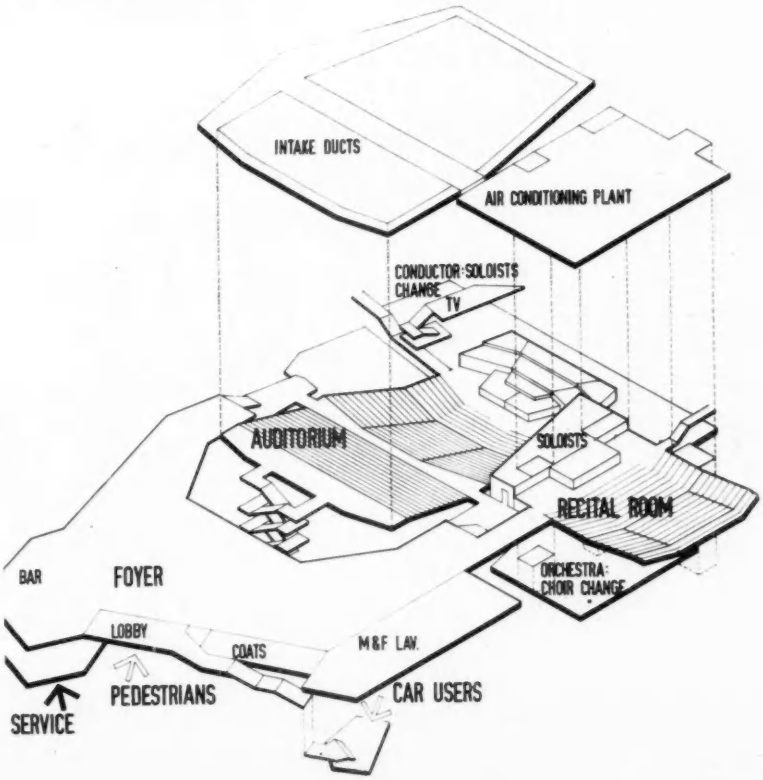

*Art Gallery diagram*






*New traffic roundabout, south side of Waterloo Bridge*

*Concert Hall diagram*




## South Bank Development

signed in close consultation with the Arts Council. It comprises 20,000 square feet of exhibition space on two levels around a central staircase and passenger lift. The exhibition space will be capable of almost unlimited variation by the use of a flexible wall system. The upper galleries will have natural lighting from above and be fully air-conditioned. At this level there will also be three open-air sculpture courts, which are cantilevered from the building.

Construction is generally of reinforced concrete flat slabs, but for larger spans ribbed floors are used. Full use has been made of the reinforced concrete wall for the purpose of cantilevering the projecting portions of the building. An interesting feature is provided by the roof structures of the galleries. These consist of rectangular grillages of 3 in. wide beams of prestressed concrete, which in addition to their structural function also provide baffles diffusing the sunlight

There will be a public display at the Royal Festival Hall of the plans and models of the scheme.

# Building Research in Australia

## Results of Work Generally Applicable to the United Kingdom

FROM A CORRESPONDENT

TO THOSE of us who think the Australian climate is endless sunshine, the similarity of building problems described in the Commonwealth Scientific and Industrial Research Organisation's Building Research Annual Report 1959-60 (issued from Graham-road, Highett, S.21, Victoria, Australia), to our own will come as a surprise. In fact, in gross terms of temperature range and annual rainfall, the climate of the populated southern coast of Australia is not so very different from that here and, if used with discretion, the results of the work being undertaken will be applicable to the United Kingdom.

As with many building research programmes, the emphasis is on materials, and the work will naturally be of most use to materials manufacturers. Although the choice and use of materials is only a part of the design and building process, such an emphasis is presumably to be expected because this side of the work appears to be the most amenable to conventional scientific analysis by physicists and chemists. Nevertheless, some of the work is of general interest, particularly that which deals with the development of new materials and new uses for existing materials.

The most important of these studies is on lightweight concrete. After some years of studying methods of producing aggregates, the work has now been expanded to include the production and performance of lightweight concrete structures.

The second part of this programme is currently concerned with the behaviour of flat plate structures. This should not only result in a saving of formwork but should also make flat plate structures economical for lower floor loadings than at present.

Other work, of more immediate interest, is concerned with failures of double glazing units and with the watertightness of glazing compounds and seals used in curtain wall construction.

With the enormous planning advantages of flat roofs it is incredible that there is as yet no completely satisfactory economical covering. The publication of the results of the work on bituminous flat roof coverings will be very welcome, especially since the booklet is the first of a new series of 'Building Studies' intended for practising architects, engineers, and builders. Publications of this nature should help to dispel the belief widely held among these people that much building research is conducted by scientists for their own satisfaction.

### Architectural Acoustics

By far the most revealing part of the report describes the work on architectural acoustics. The study of the acoustics of rooms and auditoria has been wound up, a hypothesis formulated, and attention redirected to the study of noise, particularly in modern lightweight buildings. This is obviously a more pressing problem, and the results of the work will have wider application, but the auditoria study contains a lesson for all building research. The hypothesis states that not only must the auditorium have reasonably satisfactory acoustic characteristics but also that the audience must be made very comfortable and the hall fairly old before the 'acoustics' will be rated good by the public.

Facts of this kind are only put into perspective by a very broad approach to the problem. To quote the report: 'Environmental physics and other fields of building research demand this overall view and attack on several points, each aspect of the study being called on to ensure that the accuracy sought is not fictitious and that the ideas pursued are not illusory. Such an overall view of a research problem is obviously a reasonable approach and most research workers would agree that it is necessary. However, from published work in fields relating to building it is evident that this approach is not always followed in practice.'

# Expanding Towns

## Progress in Hants and Oxfordshire

THE DRIVE for expanding towns in Hampshire will produce new forms of consultation and organisation of officers between the London County Council, the Hants CC and Andover and Basingstoke Borough Councils. A new scheme is also proposed for Banbury in Oxfordshire.

At BASINGSTOKE, a separate organisation is to be set up immediately consisting of specially recruited officers, to take over the completion of the Basingstoke Town Map and subsequently to implement the plans for the further expansion of the town. A general manager and an architect/planner will be appointed in the near future. A small team of officers, highly skilled and experienced in the development of a new town, will work direct to the Basingstoke Joint Town Development Committee and will be responsible to them for the execution of the scheme as a whole. Much of the detailed work will be put out to architects and other specialists in private practice.

### Appointments to be Made

Appointments will be made by the Hampshire CC on the recommendation of the joint committee. Until the officers to be appointed can take up their duties, the staff in the architect's department already employed on the work will continue to collaborate with officers of the Hants CC on the preparation of the Town Map.

At ANDOVER a joint committee consisting of 4 members of Andover Borough Council, 3 of Hampshire CC and 3 of the LCC will be responsible for the preparation and execution of the town development scheme. It has been agreed that the LCC will act as agent for the borough council for the development of its housing and industrial sites, and the London County Council is now recommended to enter into a formal agreement (subject to the Minister's approval). The original expansion proposals are to be extended to provide for an additional population of 25,000 (5,000 by private development) which, allowing for natural increase, means that the total population of Andover will rise to about 48,000 ultimately. This increased expansion (involving the erection of 6,000 dwellings over 20 years of which about 4,000 would be built in the first 10) will be of great value in furthering the LCC's decentralisation policy.

The amount of town centre redevelopment necessitated is more than Andover Borough Council could bear unaided and it has been agreed in principle that the LCC and Hampshire Borough Council will assist in the phased acquisition of certain central areas.

At BANBURY an agreement is to be entered into between the LCC and the Borough Council for a town development scheme involving the erection by the borough council of about 2,000 dwellings for Londoners and development of industrial sites over a period of about 10 years. The LCC will meet interest charges during construction of the houses and half the housing deficiency for 10 years for each dwelling occupied by a tenant nominated by the LCC.

# Competition News

## *Boston Hospital*

THE DESIGNS submitted by the six finalists in the second stage of the competition for a new hospital at Boston, Lincs., will be on public view from Monday April 10 in the Firth Hall, University of Sheffield, Western Bank, Sheffield, 10, and until Saturday April 15.

Subsequent exhibitions will be held at Fydell House, South End, Boston (April 17-22), and at the RIBA, 66 Portland-place, London, W1 (April 26 to May 13).

Due to serious illness (from which we are glad to know he is making a good recovery) Mr. J. Murray Easton has been obliged to withdraw from the assessorship. At the time of going to Press no new appointment had been made.

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### CoID Appointment

MR. GEORGE RATCLIFFE will in April take over from Mr. Alec Gardner-Medwin responsibility for the CoID's contacts with the pottery and glass industries. Mr. Gardner-Medwin will continue to take a keen interest in these two important industries through his position as head of the industrial division of the Council.

# News of the Week

### City of London Architect

MR. EDWIN GEORGE CHANDLER, ARIBA, AMTPI, City Architect and Planning Officer for Oxford, was appointed Architect for the City of London from a short list of three at the meeting of the Court of Common Council on March 23. Mr. Chandler, who is 46, has been at Oxford since 1947. Before that he held deputy or assistant positions at West Ham, Portsmouth, with Hampshire County Council, and at Croydon.

### Researching into Tropical Architecture

THE DEPARTMENT OF TROPICAL ARCHITECTURE, the AA School of Architecture, has recently received encouraging support in the form of a research fellowship donated by the Aluminium Development Association. Valued at £650, for one year, the Fellowship's purpose is the training of architects in methods of research in tropical architecture; the current subject will be roofing in the humid tropics. The fellowship is open only to those who have successfully completed the course in the Tropical Department, whose head is Dr. O. H. Koenigsberger.

### NFBTO's New General Secretary

MR. HARRY WEAVER, President of the Amalgamated Union of Building Trade Workers, was on March 23 elected General Secretary of the National Federation of Building Trades Operatives in succession to Sir Richard Coppock, who has held the office since 1921. Sir Richard will relinquish the post to his successor after the Federation's annual conference at the end of June.

The election took place on a card vote at a meeting of delegates of the unions in the Federation. It is understood that Mr. Weaver's only opponent, Mr. S. Taylor, chairman of the executive of the Amalgamated Society of Woodworkers, received only the 120,000 votes of his own union. The remaining unions present cast their votes, totalling more than 300,000, for Mr. Weaver.

Mr. Weaver, who has been a member of the AUBTW for 36 years, is 52.

### 'Building Matters' Ends

THE LAST of the present series of 'Building Matters' programmes was broadcast on Tuesday, March 28. It took the form of a review by the team—Charles Crichton, Edward Mills, Ken Pearce and Gontran Goulden—of various subjects discussed in the past six months.

### Millbank Tower Block

IN A CAPTION on page 542 of last week's issue of 'The Builder' it was erroneously stated that the new tower office block now under construction as part of the Millbank development scheme was for the Imperial Chemical Industries. The building is in fact being constructed for the Legal & General Assurance Society Ltd.

### Royal Society of British Sculptors

AT THE ANNUAL GENERAL MEETING of the Royal Society of British Sculptors, held on March 21, Mr. E. Bainbridge Copnall, MBE, FRBS, was elected president in succession to Mr. Mark Batten who had served the full term of five years. Mr. R. Bentley Claughton was re-elected vice-president and Mrs. Marjorie Crossley was elected hon. treasurer in succession to Mr. E. R. Bevan. Mrs. M. Drawbell, Miss Gwynneth Holt, Mr. A. J. J. Ayres, Mr. W. Dudeney and Mr. Hermon Cawthra were elected to fill five vacancies on the council.

# Obituary

## Rex Procter; H. A. James; Frank Woodcock

### Rex Procter, JP, FRICS, ARIBA

WE GREATLY REGRET to record the death of Mr. Rex Procter, FRICS, ARIBA, which took place as the result of an accident between his car and a lorry at St. Mellons, near Newport, Mon., on March 23, in which Mrs. Procter also was killed. Mr. Procter, who had taken a leading part in RICS educational affairs, was a member of the Institution's quantity surveyors' committee and a member of Council. He was chairman of Leeds Rugby League Football Club.

Rex Procter, born on July 18, 1903, was educated in Hull and was articled to Mr. G. C. Terrey, FRICS, from 1920-24, after which he spent some years with the Sudan Government before returning to England in 1929 to local authority work with Stoke-on-Trent corporation, Lindsey CC and Leeds. In 1939 he went into private practice where he developed his considerable talents as an arbitrator.

Procter did much work for the Royal Institution of Chartered Surveyors, of which he became a Professional Associate in 1929 and Fellow in 1941. He was a member of the Quantity Surveyors' Committee 1955-61, member of council for Yorkshire 1957-61, and a member of the special Review of Educational Policy committee 1959-60. He was past-chairman (1949-50) and hon. Secretary of the Yorkshire branch of the Institution and was past-chairman of the Yorkshire regional JCC. He was a Justice of the Peace and a member of the County Councils Association. An excellent speaker and raconteur, he was much liked by a host of friends who will extend great sympathy to the son and daughter who survive their parents.

Rex Procter was a great sportsman and numbered Rugby football (he had played for Yorkshire), rowing, boxing and League cricket among his interests.

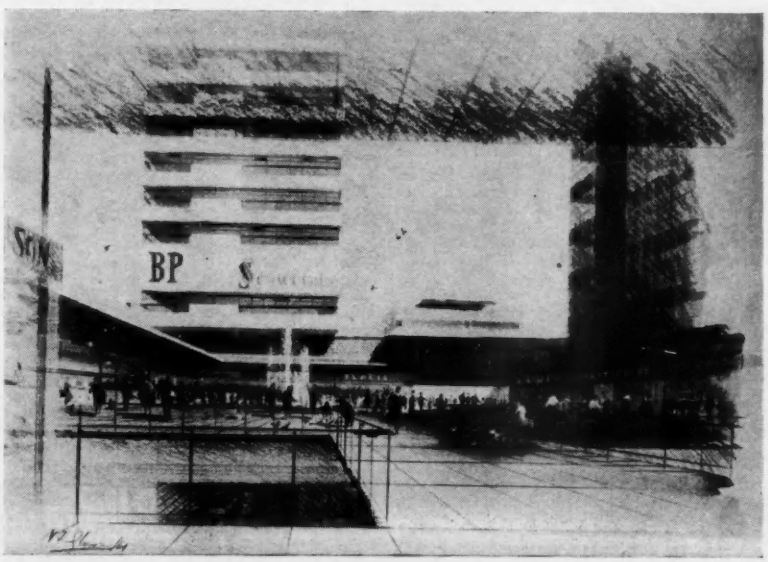
### H. A. James, FSA, LRIBA

THE DEATH is reported of Mr. Harold Arthur James, FSA, LRIBA, late of the Ancient Monuments branch, the Ministry of Works.

### Frank Woodcock

THE DEATH occurred, on March 23, at the Sheffield Royal Hospital, of Mr. Frank Woodcock, assistant managing director of the Helical Bar & Engineering Co. Ltd. Mr. Woodcock served two periods of office as President of the Federation of Associations of Specialists and Sub-Contractors. He was also a prominent member of the Association of Constructional Floor Specialists.

*A perspective of a scheme prepared by Mr. D. Rigby Childs, ARIBA, AMTPI, for a £12m. shopping way for Oxford-street, London, in which pedestrian and vehicular traffic would be separated. It is stated that the project, if adopted, could be completed in five years. The scheme was put forward at a special meeting of SPUR on 'The Major Shopping Street' held at the RIBA building on March 22*



# University Building

## Increased Grant-aid for Projects

EXPENDITURE totalling £24.9m. for building projects either in progress or planned for the next financial year at universities in England, Wales and Scotland is detailed in the Civil Estimates for Education 1961-62 published on March 17. This compares with £23,586,375 in the financial year just drawing to a close.

The estimates show that the total grant for building works estimated to cost £30,000 or more, commenced before January 1, 1961, is expected to be £41,240,595. Of this £22,902,420 is expected to be paid by March 31, 1961, and Parliament is being asked to vote £13,800,000 for the new financial year leaving £4,538,175 to be voted in 1962-63 to complete payment of the schemes. There are 156 projects listed as in progress along with the instalments of grants required for 1961-62.

For building works estimated to cost £30,000 or more, not commenced on January 1, 1961, the total Exchequer grant is expected to be £18,535,705. Of this only £266,000 has been previously paid and for the new financial year Parliament is asked to approve grants totalling £6m. leaving £12,269,705 to be voted in future years. In addition MPs will be asked to vote £1.2m. towards building works estimated to cost less than £30,000; another £1.4m. towards the purchase of sites and buildings; £5m. for furniture and equipment; and £2.5m. for professional fees.

The section detailing work not commenced on January 1, 1961, lists 96 projects of which 69 have had no money voted in previous years. The 69 includes the following (the first figure being the proposed total Exchequer grant based on the estimated cost and the second figure the instalment of grant required for 1960-61):

*Birmingham University:* Biology building, Stage II, £350,000, £350,000; Metallurgy building, £175,000, £15,000. *Bristol University:* Physic Department Water Tower, £38,000, £2,500; Physics Wing extension, £90,000, £2,500; Men's hall of residence A and B, Stage I, £225,000, £5,000. *Cambridge University:* Physics High Tension Laboratory Conversion, £40,000, £35,000; Biochemistry extension, £125,000, £20,000. *Durham Colleges:* Arts Block, £130,000, £40,000; Hatfield College Gatehouse, reconstruction for student accommodation, £44,780, £35,000.

*Exeter University:* Chemistry and Physics block, £521,150, £100,000; Lecture room block, £607,000, £20,000. *Leeds University:* Library mezzanine floor, Stage IV, £36,000, £20,000; Arts block, Stage III, £337,000, £18,000; Tetley Hall, Stage II(B), £46,115, £35,000. *Leicester University:* Engineering building, Stage II, £170,000, £55,000; reconstruction of main building, £50,000, £5,000. *Liverpool University:* Women's Hall annexes, £100,000, £80,000; Organic chemistry, Stage II, £144,450, £100,000.

*London University:* Bedford College: Hall of Residence, Hanover Lodge, £275,265, £30,000. Birkbeck College: New extension, £407,000, £30,000. Imperial College: Prince's Gardens, north side, athletic facilities, £70,000, £15,000; adaptations to Prince's Gardens, north side properties, £30,000, £10,000; adaptations to Beit Quadrangle buildings, £30,000, £5,000. London School of Economics: Reconstruction of main building, Stage I, £57,500, £50,000. Queen Mary College: Physics building, Stage II (b), £109,200, £86,000. University College: Biological sciences building, Stage V, £313,645, £60,000.

*Manchester University:* Hall of residence, £150,000, £15,000; Chemistry building, Stage I, £500,000, £15,000; Refectory, student residence block, Stage II, £300,000, £200,000; Humanities building, £250,000, £15,000; Lecture hall and examinations room £310,000, £205,000. *Manchester College of Science and Technology:* Study bedroom block, Stage I, £70,000, £70,000; Civil engineering building, Stage II, £320,000, £165,000. *North Staffordshire University College:* Horwood hall of residence, further blocks for women, £60,000, £45,000.

*Nottingham University:* New hall No. 3, £292,000, £140,000; New hall No. 5, £294,420, £200,000; External services for applied sciences building, Stage III, £48,095, £10,000. *Oxford University:* Geology extension, £100,000, £25,000; St. Catharine's College, Stage I, £120,000, £70,000; Iffley Road running ground, new stand, £50,000, £35,000. *Reading University:* New hall of residence, £250,000, £126,000; Chemistry building, £340,000, £34,000.

*Sheffield University:* Physics/mathematics block, Stage IA, £87,515, £80,000; Arts/architecture building, Stage I, £350,000, £30,000; Annexes to Men's hall No. 3, £100,000, £50,000. *Southampton University:* Arts building, £270,000, £40,000; Glen Eyre hall of residence extension, £115,000, £75,000. *Sussex University:* Library, £150,000, £20,000; Engineering building, £140,000, £20,000; Chemistry building, £300,000, £20,000; boiler house, £80,000, £15,000.

*Aberystwyth University College:* Chemistry extension, £160,000, £75,000; physics and mathematics building, Stage II, £164,990, £100,000. *Bangor University College:* Library extension, Stage II, £95,000, £45,000; Chemistry building, £98,000, £7,000; Animal house £44,000, £4,000; Men's hall of residence, £60,000, £10,000. *Swansea University College:* Library and Arts building, Stage I, £304,000, £130,000.

*Aberdeen University:* Heating station, £65,000, £50,000; Natural philosophy building, Stage II, £175,000, £15,000; Science library, £40,000, £30,000. *Edinburgh University:* Salisbury Green hall of residence, Stage II, £254,000, £10,000. *Glasgow University:* Women's hall of residence, Kirklee, £225,000, £35,000. *Glasgow Royal College of Science and Technology:* Engineering department, £250,000, £40,000. *St. Andrew's University:* Students' Union, Queen's College, Stage I, £45,000 £30,000; Belmont residence, Queen's College, Stage I, £215,000, £50,000; Heating installation, Queen's College, Stage II, £58,000, £30,000; Chemistry and mathematics building, Queen's College, £110,000, £5,000; Extension to West Park Hall, Queen's College, £90,000, £5,000.

The estimates of the Ministry of Education include £5.2m. in respect of repairs and maintenance and building work for aided and special agreement schools; £3m. compared with £1,250,000 in the current year) for capital grants for teacher training colleges; £335,000 towards the expenditure on new premises for the Commonwealth Institute; £470,000 (compared with £409,000) on grants towards the expenses of voluntary organisations in providing or in aiding the provision of facilities for physical training and recreation; and £3,495 (compared with £2,700) on special experimental work in education methods and school building. In Scotland the physical training grant will be £50,000.

## Coming Events

*TUESDAY, APRIL 4*

THE CONTRACTORS MECHANICAL PLANT ENGINEERS (Manchester and District Branch).—Ordinary meeting at the Woodcourt Hotel, Brooklands-rd., Sale, Cheshire. 7.30 p.m.

*WEDNESDAY, APRIL 5*

THE TOWN PLANNING INSTITUTE.—Mr. Neville Borg on 'Overspill: A Major Problem in City Redevelopment.' The Livingstone Hall, Carteret-street, SW1. 6 p.m.

*THURSDAY, APRIL 6*

SOUTHERN REGIONAL COUNCIL FOR FURTHER EDUCATION.—Short course on modern methods of central heating for domestic and small premises. East Berks. College of Further Education, Boyne Hill-avenue, Maidenhead. For two days.

INSTITUTE OF BUILDERS DISCUSSION CLUB (Birmingham Centre).—Annual dinner and dance. The George Hotel, Solihull. 7 p.m.

*FRIDAY, APRIL 7*

ART WORKERS GUILD.—Ordinary meeting: 'Rhythm and Scale—Two Problems in Composition.' By A. Llewellyn Smith. 6.30 p.m.

INSTITUTION OF STRUCTURAL ENGINEERS (Midland Branch graduates' and students' section).—Major G. Botteley on 'The Reconstruction of Pershore Lock.' The Engineering Centre, Stephenson-place, Birmingham. 6.30 p.m.

INSTITUTION OF STRUCTURAL ENGINEERS (Western Counties Branch).—G. K. Medlock on 'Mechanical and Electrical Problems associated with Multi-Storey Construction' and a film, 'The Pirelli Building in Milan.' Small Lecture Theatre, University Engineering Laboratories, University-walk, Bristol 8. 6.45 p.m.

RICS (JUNIOR ORGANISATION QUANTITY SURVEYORS' COMMITTEE).—Residential course on 'Clients, Cash & Contracts.' Trent Park Training College, Cockfosters, near Barnet, Herts. Until April 9.

## A Hundred Years Ago

**From The Builder of March 30, 1861**

THE ROYAL EXCHANGE.—It is lamentable to find that the elegant interior quadrangle of this structure is about to become the sport of experimentalists. So few are the finished works of architecture in London that really there are none to spare, either for professional tampering or spoliation. Violence enough has been already done to the exterior, by deforming the original design with most incongruous if not unsightly shops: are we now to have the interior converted into a railway shed, and half of it cut off by a velum of dust and smoke blacks?

W. H. HYETT

## Professional Announcements

MESSRS. RONALD WARD & PARTNERS, architects and engineers, would be pleased to receive trade literature at 208 Broad-street, Lagos, Nigeria (Private Bag 2079).

W. E. J. BUGDEN & PARTNERS, consulting, civil and structural engineers of 54 Queen Anne-street, London, W1, have opened a branch office at 9 Quarry-street, Guildford, Surrey, under the charge of MR. J. A. GUINNESS, BSC, AMICE, MISTRUCT.E, who is now a partner in the firm.

MR. MALCOLM C. CLAYTON, AIAS, AIQS, quantity surveyor, has commenced a Brighton and Hove practice at 71 Church-road, Hove 3, Sussex (tel.: Hove 71483 and Brighton 58019), and will be pleased to receive trade catalogues.

MESSRS. VAIL & MACARA, F/ARICS, chartered quantity surveyors, have moved to new offices at Kensington House, 6 Osborne-road, Newcastle upon Tyne, 2 (tel.: Newcastle 81-2351/2).

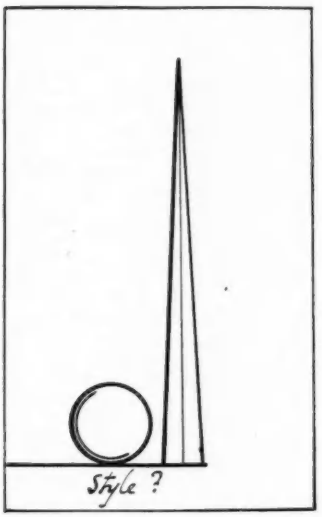
# More Everyday Things

BY ARTHUR W. KENYON, CBE, FRIBA

## 35. Style

AS THE SCIENTISTS produce for us new building materials and the engineers work out new structural theories, we are released for all kinds of new thinking in our design. Architects have new ideas of relationship between a building and the materials which go to its making. Whereas architecture in the past has been an art contrived by the skilful wielding of materials to serve our building purposes in shapes and proportions pleasing to the eye, I believe our mastery of matter may now enable us to dispense with all apparent art and contrivance if our skills are great enough, and we may one day achieve the perfect synthesis of building, materials and function. This is the visionary dream which our young men dream.

For myself, brought up in the classic tradition, I shall still call it style. Fashions may come and go overnight, but style is something different. It takes longer to mature. It grows slowly, nurtured by loving care and long attention to detail. It is polished and refined over years of dedicated practice; the process is not an immediate one. Every artist knows this,




whether he be a creator or an interpreter. Patience, labour, study; a slow learning of what is best by error and rejection of the less than perfect. All this goes to make a style.

Science can move fast but art must take its time. and it is all the modern architect can do to keep up with modern science. He has no time to perfect his style. Daily he must discard outmoded structural canons. Daily new building elixirs are offered to him. He is drunk with ideas and he needs to work on them before he can find perfection. The excitement of it is almost too much for one architect in one lifetime.

I see young architects exuberant with ideas and visionary schemes which only the calm of a drawing board can sublimate, yet they spend their precious days panting after the scientist lest they should get left behind in the technical race. I sometimes feel I would like to cry 'Halt!' to the researchers in their laboratories: 'You have done enough. Give them time to think and dream with the materials you have already given them. They have more than enough to build their buildings: now they must design. We must have style again and they must be left alone to find perfection. They cannot do it whilst you keep pouring out your bulletins.'

But I should cry in vain, for those whom science has blinded with her fire, no words of mine can hope to lure from her service.

# Compulsory Purchase and Compensation

## Call for a Change in the Law

A CALL for a change in the law to end the 'legalised confiscation' by local authorities of unfit houses for slum clearance purposes was made by MR. E. HOWARD HACKETT, FAI, on the occasion of his installation, on March 23, as President of the Incorporated Society of Auctioneers and Landed Property Agents.

'Although' said Mr. Hackett, 'the Town and Country Planning Act, 1959, has restored the basis of compensation for compulsory purchase to that of value in the open market, many difficulties and problems still arise. One sees examples of local authorities acquiring the leasehold interest of a condemned house property for a few pounds (in fact for £1 per house) and then developing the site as a freeholder in possession.

'Section 4 of the Housing Act, 1957,' he continued, 'lists the defects for which a house can be condemned, and it is important to remember that even a single defect can render a house unfit. In my view the standard imposed is too high. As long as the defects come under the section referred to, the houses can be taken with compensation at site value only, which I personally call legalised confiscation. It is my opinion that the law should be amended to give a life value to these properties. No appeal except on points of law can be made.'

Other points from the President's speech were :

*Schedule A Tax.*—There has been strong pressure from many quarters for repeal of this tax in respect of owner occupiers and I think there is general agreement that such repeal is overdue. As far as rented property is concerned, it is surely time a much larger allowance for repairs was given. The present allowances are quite unrealistic when one bears in mind that the present cost of repairs is three to four times the pre-war cost.

*Improvement Grants.*—I do not think that owners generally realise the advantages of making use of the provisions of the Housing (Financial Provisions) Acts, 1958 and 1959. In my opinion, agents should in suitable cases advise their clients to modernise their houses by putting in bathrooms, lavatories, ventilated food stores, etc., and thus qualify for a grant of up to half the cost of the work. Rents of controlled premises can be increased by 8 per cent per annum (proposed to be increased to 12½ per cent by the new Housing Bill) of the cost of the improvements borne by the landlord. This Act was passed to enable owners to modernise their houses, and thereby safeguard them from being classified as unfit.

*Planning Appeals.*—I should like to see the hearing of planning appeals expedited. There is often absolute frustration before one can sell a particular piece of land or property. The local authority is required to give its decision for or against an application for planning permission to change the user within a maximum of two months, but it is almost unheard of for them to give it any sooner, and if an appeal is lodged it takes several more months before the appeal is heard and then several weeks before the result is given. In my view, the whole system of appeals should be overhauled and a more expeditious system introduced.

*Registration.*—I am hopeful that my Society, in co-operation with the other professional bodies, will be in a position to present a Registration Bill to Parliament in the near future, as I am sure it is of the utmost importance to stop unscrupulous quack practitioners from bringing the name of estate agent into disrepute.

## RIBA

### *Appointment of Representatives*

FOLLOWING are among the appointments confirmed by the RIBA Council at its meeting on March 14 :

*Registered Plumbers Association: Annual Meeting of the General Council.*—Mr. W. A. Allen, the Chairman of the Technical Standards Committee, has been appointed as the Institute's representative at the Association's Annual Meeting of the General Council on June 2.

*Standing Joint Conference on the Recruitment and Training of Architects for the Care of Old Buildings.*—The Board of Architectural Education have appointed Mr. H. Martin Lidbetter to represent the Institute on the Conference.

*Chester College of Further Education: Building Advisory Committee.*—On the nomination of the Liverpool Architectural Society, Mr. R. Vernon Smith has been reappointed to serve on the Committee for a further period of three years from April 1.

# Public Baths Establishments

## Basic Facilities and Capital Costs

BY T. EDWIN BELT AND JOHN SMITH, FRIBA

IN PREVIOUS ARTICLES the authors have set forth an economically reasonable and practical 'Fresh Approach to Swimming Bath Design' ('The Builder' of April 1, 1960) and an analysis of the economic factors in the 'Design of Public Baths Establishments' ('The Builder' of September 9, 1960). Now follows an assessment of the basic facilities and capital costs of establishments which may be provided by local authorities.

### Olympic Baths

It is anticipated that this class of establishment will be envisaged only by those authorities financially competent to provide at least three suburban establishments in addition. The bath will be 165 ft. long, 60 ft. wide, and have a constant depth of 6 ft. It will be equipped with water-polo goalposts and a field of play marked out with the permanent materials in which the bath is finished; underwater viewing windows; a pacemaker machine; underwater and public address loud-speakers; a competition scoreboard; underwater stage-lighting for use in water ballet and synchronised swimming events; permanent race-starting blocks; and markings to facilitate the measurement of distances in the long plunge. A sun-bathing terrace will be accessible through glass doors from the whole of the south side of the bath.

The pool will be 60 ft. by 60 ft. by 17 ft. deep, and the diving equipment will comprise 1 and 3 metre springboards, together with 5, 7½ and 10 metre firmboards; mechanical means for the agitation of the water surface; a competition scoreboard; towel airing rails at the diving end; and steps up out of the water to the entire end of the pool opposite the diving boards. Spectators' seats will be sited at the sides only, and neither natural nor artificial light will be allowed to interfere with the divers' sight in either front or back take-offs from the boards.

The pond will be 110 ft. long by 60 ft. wide by 3 ft. deep throughout, and it will be equipped with rails at water level down both sides, but not at the ends; built-in steps leading into the sides; a competition scoreboard; portable teaching facilities; and a sun-bathing terrace will be incorporated as for the bath.

The gymnasium will have a free floor area of at least 70 ft. by 40 ft., and in addition to the orthodox equipment it will provide a trampoline, a 1 metre springboard over a foam rubber landing area, and weight-training facilities. The size finally will be determined by the scope of the activities to be catered for and can only result in a small percentage increase on the total cost of the baths establishment. Country-club style dances, badminton, and covered courts tennis are acceptable additional amenities which might be made available. The capital cost of such an establishment will be in the neighbourhood of £657,000 exclusive of the site.

The appropriate site is within a park and/or recreation ground, or in close proximity thereto, so that it is available for use in conjunction with, and in augmentation of the other facilities for sport and recreation provided, and where sylvan lido-like amenties can be enjoyed to the full. The ever-increasing high capital value of city centre sites emphasises the unsuitability of such land for a monopoly service to the ratepaying public at large.

The complementary suburban establishments, which are described under Urban District Council Baths, will cost in the region of £229,000 each.

### County Borough Baths

Those authorities which encompass a relatively small acreage may wish to provide one baths establishment only, and others, up to three suburban establishments in addition. The bath will be 110 ft. long by 60 ft. wide by 6 ft. deep, and provide a full international size field of play for water-polo. The pool will be 50 ft. long by 38 ft. wide by 12 ft. 6 in. deep, and the diving equipment will be a 5 metre firmboard together with 1 and 3 metre springboards. The pond will be 110 ft. long by 48 ft. wide by 3ft. deep, and will be equipped for the teaching of swimming. The gymnasium will be as previously described.

The capital cost of this establishment will be about £413,000. Suburban establishments are described under Rural District Council Baths, the cost being in the region of £205,000 each.

### Borough Baths

This class may be the sole public aquatic amenity to be provided within an authority's area. The bath will be 110 ft. by 60 ft. by 6 ft. deep. The pool will be 45 ft. long by 35 ft. wide by 11 ft. 6 in. deep, and it will be equipped with two 1 metre springboards together with one 3 metre springboard. The pond will be 82 ft. 6 in. long by 42 ft. wide by 3 ft. deep. The gymnasium will be as previously described.

The capital cost of the complete establishment will be in the neighbourhood of £305,000.

### Urban Baths

The bath will be 110 ft. long by 60 ft. wide by 6 ft. deep throughout, which is the minimum size in which first-class water-polo can be fostered and enjoyed. The pool will be 35 ft. long by 25 ft. wide by 10 ft. deep, and the diving equipment will be two 1 metre springboards.

The pond will be 82 ft. 6 in. by 28 ft. by 3 ft. deep, which is the standard size recommended for schools' purposes. The size of the gymnasium will depend on local requirements, as previously described. The capital cost of the complete establishment will be in the region of £229,000.

### Rural Baths

These establishments will be envisaged only by self-contained and isolated authorities having their own administrative centre.

The pool will be 35 ft. long by 18 ft. wide by 10 ft. deep, and will provide the basic equipment required for the acquirement of safe diving technique, namely the 1 metre springboard. The bath, the pond, and the gymnasium will be as described for an urban establishment. The cost will be approximately £205,000.

### Swimming Baths

The minimum capital expenditure to be envisaged by any local authority contemplating the erection of a comprehensive indoor public baths establishment is £132,000. This outlay will provide a bath 110 ft. by 60 ft. by 6 ft. constant depth, and a site chosen in close proximity to educational and hospital buildings, which share a requirement for healthful open surroundings, and in collaboration with the county council and the hospital board, should ensure that a pond and a gymnasium are additionally made available to the general public, and at the expense of those authorities. Diving, which is of small comparative value in the promotion of public health, can be practised in the gymnasium on a trampoline and a 1 metre springboard over a foam rubber landing area.

In any case of financial stringency, the provision of a full-size water-polo field of play must be abandoned, and so facilitate the provision of safe and public health-promoting swimming amenities. These will take the form of a bath 82 ft. 6 in. by 48 ft. by 6 ft. deep costing about £79,000, a bath of the same length and depth but 42 ft. wide costing £70,000, or the same bath but 35 ft. wide costing £58,000, or a bath 28 ft. wide costing £46,000.

The 'spearhead' system of competitive swimming can be undertaken in the two baths which are 48 ft. and 35 ft. wide respectively. This system, apart from its practical merits, can provide added interest to a gala due to the very obvious consequential spotlighting of the occasion on which an 'underdog' rises above himself to challenge the favourite.

### Basis of Costing

In those areas where a public baths establishment is not expected to be made available within reasonable proximity to the schools, then a pond 82 ft. 6 in. by 28 ft. by 3 ft. deep may be provided by the education authority, and should be available for public use outside of school hours. The cost should not exceed £16,000.

With the exception of schools teaching ponds, costs have been evaluated on the

principle of values per ft. superficial of water area provided per complete establishment, plus a rate for the gymnasium. These values are: Olympic, £32; county borough, £29; borough, £25; urban, £22; and rural, £20. The gymnasia have been costed at £3 10s., and the teaching ponds, which do not form a part of a public baths establishment, at £5 per ft. superficial of internal overall area of the building.

At the sketch plan and estimate stage, the corresponding values per ft. cube may be taken as: Olympic 8s.; county borough, 7s. 6d.; borough, 6s. 10d.; urban, 6s. 4d.; and rural, 6s.

### Basic Principles

The basic principles underlying this 'Fresh Approach to the Design of Public Baths Establishments' have been set forth in previous articles, and it is of considerable interest so far as the design of Olympic baths is concerned (wherein international match and national competitive events, and the conditions governing them, have an important bearing on the design), that recent research directed toward the evaluation of optimum swimming speeds in relation to the depth of water in which the swimmer is engaged, indicates that, other things being equal, swimming speed records are the more possible of achievement in a constant 6 ft. depth of water, rather than in a bath incorporating a 3 ft. deep shallow end. The traditional type of bath last mentioned is, therefore, not only out-dated, comparatively dangerous in use, and a multi-purpose compromise frustrating to the full enjoyment of all the various mutually antagonistic aquatic pursuits, but additionally it must lose favour as an international match, and national championship venue for swimming.

# *The Civil Estimates, 1961-62*

## Prisons, Borstals and Detention Centres

THE CONTINUED development of the programme for providing additional prisons, borstals, detention centres and staff quarters and the construction of remand centres, is expressed in monetary terms in the Civil Estimates for Prisons, 1961-62, published on March 17. In England and Wales, Parliamentary approval is sought for an estimate of £4.4m. compared with £4m. in the current financial year. In addition £600,000 is set down for ordinary repairs, compared with £500,000 in 1960-61. In Scotland £451,255 is sought for new buildings and alterations, a rise of £16,245, and £37,600, an unchanged estimate, is sought for maintenance of premises.

The prison schemes in England and Wales on which Parliament has either only voted token amounts previously or not voted anything, include the following, the first figure being the total estimate (this is mostly provisional) for the work, the latter sum required for 1961-62:—Moor Court, conversion to detention centre, £85,000, £40,000; remand centre and regional observation prison at Risley, £1,325,000, £180,000; permanent security prison for women, £450,000, £10; fourth permanent security prison for men at Stoke Heath, £690,000, £100,000; Second permanent security borstal for boys at Wellingborough, £632,500, £120,000; third permanent security borstal for boys at Barby, £575,000, £2,500; second remand centre, £300,000, £10,000; fifth permanent security prison for men, £750,000, £10; sixth permanent security prison for men, £1m., £10.

Most of the other new schemes are for work on boiler plant at prison establishments such as Wakefield, Wormwood Scrubs, Portland, Leeds, and Winchester, new gymnasiums at Hatfield and Portsmouth, new kitchens and dining halls. £20,000 is included towards the £100,000 provisional estimate for the purchase of sites and preliminary works for five additional remand centres, while a token sum of £10 is set down for the purchase of sites (total estimated cost £100,000) for six permanent security prisons for men. Another token sum is put for the purchase of sites for three permanent security borstals, and £7,000 towards sites for 1,500 officers' quarters at various prisons.

Of the prison schemes in progress, MPs will be asked to vote considerable sums like the £590,000 towards the psychiatric institution at Grendon, £400,000 towards the acquisition and adaptation for six more detention centres and £250,000 for the new men's prison at Blundeston.

A considerable programme for providing and improving prison officers' quarters is also in progress, as well as workshops and stores and prison hospitals. A £100,000 vote is down for improving sanitary services in prisons (total provisional estimate £495,000).

## Power and Science

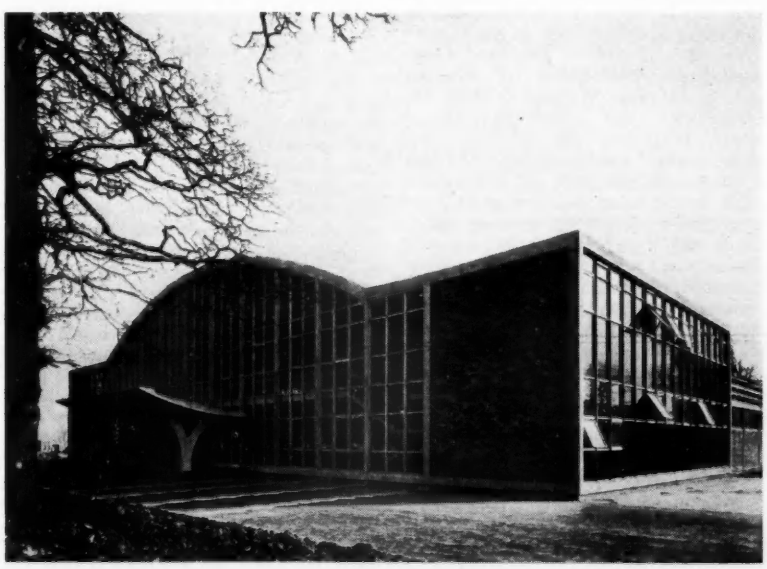
ACCORDING to estimates published on March 15, capital expenditure by the Ministry of Power in 1961-62 on oil storage and distribution facilities will fall to £728,000 compared with £2,460,000 in the current financial year.

Estimates for the Atomic Energy Authority include £23,500,000 for works services, plant and machinery, a drop of £6,450,000. Of that £23.5m. there is £1m. for works to be started in the year (the estimated total cost of these is put at £10,677,000) and £9m. for works started in previous years. Purchase of land and buildings is put at £273,000 (£372,000 in 1960-61) and capital assistance to contractors £37,000 (£73,000 in 1960-61).

Grants to the Nuclear Research Institute included £3,718,000 for non-recurrent expenditure on works services, plant and machinery. This (compared with £4.5m. in 1960-61) is made up of £182,000 for works to be started in the year (these have a total estimated cost of £2,443,000), £826,000 for works started in previous years and £2,710,000 for plant and machinery. The estimate for the high temperature gas-cooled reactor experiment in the UK is £2,083,000 (£1,228,000 in 1960-61).

Under the estimates of the DSIR, details of the staff at the Building Research Station are given showing salaries in 1961-62 of £651,098 compared with £589,575 in 1960-61. Gross total expenses of the research station are put at £765,098, receipts £41,100, leaving the net total estimate for the station of £723,998. The gross total cost of the Fire Research Station is put at £159,217, with receipts of £110,600, making the net total estimated cost for next year £48,617.

NEW PUBLIC BATHS AT WYTHENSHAWE, *opened on March 11. Designed by Mr. L. C. Howitt, MArch, FRIBA, Manchester City Architect. 'Wallspan' curtain walling, by Williams and Williams, has been used. The baths will be fully illustrated in an early issue*



# Science and Architectural Education

## Professor J. K. Page's Inaugural Lecture at Sheffield University

'SCIENCE AND ARCHITECTURAL EDUCATION' was discusssed by PROFESSOR J. K. PAGE, BA, in his inaugural lecture as Professor of Building Science in the Department of Architecture of Sheffield University on March 1. Following are some extracts from his address. Professor Page said:

The great English physicist Lord Kelvin once stated: 'When you can measure what you are speaking about, and express it in numbers you know something about it, and when you cannot measure it, your knowledge is of a meagre unsatisfactory kind.' Too much knowledge about architecture falls in the latter category. The primary task of building science must be to transform as large a part as possible of architectural knowledge from Lord Kelvin's second category to his first category, recognising at the same time that certain symbolic or artistic aspects of architecture cannot be treated in this way, but nevertheless are of vital importance.

Great architects have always worked at the frontiers of knowledge and so technique in practice is of extreme creative importance. The great 19th-century French architect, Viollet-le-Duc, criticised the architectural schools of his time for producing architects who 'involve private individuals and public bodies, who entrust work to them, at enormous expense; who are disinclined to study the material requirements of the programme, or its practical execution; whose aim is rather to erect buildings that will do honour to themselves than to fulfil all the conditions imposed by the needs and habits of the day.' Clearly the technological crisis in architectural education has been with us some time.

### The Package Deal

The architectural profession at the moment is very conscious of certain developments like the package deal contract under which the building is both designed and built by the same contracting organisation. Such anxiety about the loss of traditional status may be professionally justified, but has this situation not come about because there is too much mystery and too little sound advice available from a significantly large proportion of the existing members of the architectural profession?

Architecture is neither wholly an art nor wholly a science. I can back therefore neither those who exaggerate the aesthetic importance of architecture to the exclusion of technology nor those who look on architecture as a sort of engineering manqué that could be put on the rails by adopting the methods of academic training at present used by engineers. The present academic training of engineers can be criticised, in fact, for its lack of visual content. The universities of this country train thousands of technically competent engineers, who are totally incapable, for the most part, of producing visually acceptable designs, being blind to appearance through no fault of their own, for they have been given no conscious feeling for visual design. As a consequence our whole country is littered with ugly engineered objects.

### A Biological Environment

I consider the primary technological objective in architecture is to produce a biologically acceptable environment. In the case of men, this environment is liable to become very complex. We have not only the physical environment to consider with all its related problems arising from human needs and activities with the resulting patterns of communication, but there is the social and cultural environment. Our buildings and the spaces surrounding them are the containers of our lives; they form our existential field of choice. Our lives are too deeply affected by the nature of this mould in which we live for us to be able to ignore it. The architectural poverty of our present environment in most of industrial England is appalling.

There is another problem of a more philosophical nature which makes rapid progress in modern architecture difficult at the present time even among architects themselves. It arises from a deeply held mystical attitude towards number expressed as proportion which has influenced European architecture for the last 2,500 years. Architecture is essentially a matter of proportion to such people. Many prejudices against modern architecture are often founded on this classical type of architectural idealism which still allows people to believe in concepts like beauty by which they infer Pythagorean harmony and aesthetic content, that mysterious fluid which is pumped into buildings to turn them into architecture, a kind of visual antifreeze solution which protects the buildings against the icy stares of the Philistines.

Unfortunately, people brought up in this tradition seek a type of formalism which should be of no interest to the present-day architect, for at least some of us the quality of modern architecture must be judged by different standards of value to those used by the Renaissance. Sir John Summerson recently suggested the essential new principle behind modern architecture was the idea that the unity of a building should emerge from a logical analysis of the programme in the widest sense, rather than from an appropriate assembly of units into a formal visual composition. The architect's programme may be taken to include the convenience of arrangement, the control of the environment both physically and sociologically, the convenience for construction and correct balance between economic resources and cost.

### The Creative Rôle

The creative rôle of Building Science is therefore obvious. Architecture is a total art which we experience through all our senses; our noses, our ears, our sense of balance, our heat regulating mechanism, our sense of touch all play a part as well as our eyes. This is what makes architecture such a difficult task. Clearly much greater creative use could be made of existing scientific knowledge on the psychology of perception than is the case at present.

Much lip service has been paid in architectural circles to the need to get post-graduate studies in architecture under way, but there is little sign from the architectural profession that they are prepared to make their terms acceptable to potential students. An architect has to study for five years to graduate. He then needs a further two years' professional practice to qualify. If he carries out two years' research before his professional practice, it will take him nine years to qualify. At present the Royal Institution of British Architects, unlike many other comparable professional bodies, does not consider architectural research as counting towards its professional practice requirements. A higher degree does not command a higher salary. In the circumstances, not unnaturally, there is no great rush of architectural students to do research, and the situation is unlikely to change unless the RIBA is prepared to face its responsibilities in this sphere in a much more realistic way. At the moment architecture is a profession of GPs only. I refuse to believe it can remain this way much longer. A leavening of specialists is urgently needed. Unfortunately, in architectural circles the term 'specialist' is liable to be considered a word of abuse.

So it is that people with qualifications other than in architecture have come to do the majority of the necessary architectural research work, because people trained in their other disciplines are not so inhibited about specialising sufficiently to break the really difficult problems encountered in research.

### The Popular Image

The scientific education of the architect can only be properly considered against the background of the industry he serves. The popular image of the building industry is usually formed from the periodical contacts we all have with Alf who comes to fix the tiles, and George who mends the pipes; craftsmen who are indispensable for keeping our homes in good repair. Few laymen, however, have any real idea of the huge scale of the building and contracting industry, or the magnitude of the technological and management problems involved. The mere mention of building in University circles sends people's eyebrows up sharply, and somebody immediately says, 'That is not a University subject, that's just a craft.'

The building industry is far too large and far too important to be left academically in the cold. It is essential that the industry should have its share of the

best technological brains our country can produce, and at the moment it is not getting it. There are two main reasons for this. First, empirical methods have been used for so long in the industry; few building managements have fully realised until recently the role scientific technology could play, so there has not been a demand for university men, though this situation is changing very rapidly at the moment. Second, professional men, particularly in the universities, have tended to be snobbish about building.

It will be useless to improve the scientific training of the architect without giving proper consideration to the architectural and scientific training of the other building engineering consultants. Otherwise it will be impossible to achieve an integrated pattern of thinking about building problems. In particular, I would question whether the present attitude of the Institution of Civil Engineers towards building is a healthy one. A great deal of building construction is supervised by civil engineers, few of whom have had previously any formal academic training on problems connected with building, except on structural analysis and design. For example, proper scientific consideration of the weathering characteristics of building materials and of correct methods of building construction for long-term durability is rare in the majority of civil engineering schools, yet a recent paper suggested maintenance accounts for 30 per cent of the total annual expenditure on building and civil engineering construction in Great Britain and absorbs 45 per cent of the total manpower of the industry. The civil engineer's illusion that the problems of building are 90 per cent structural and 10 per cent otherwise has to be finally destroyed, for the structural problems probably account only for 10 per cent of the total design effort required.

### Materials and Components

Finally, in considering the make-up of the building industry, one must not overlook the important rôle of the building materials and building components manufacturers. With the increased mechanisation of building, the components manufacturer is likely to assume an ever increasingly important position in the industry. Significantly it is these industrial groups, who have so far shown most interest in building research, for manufacturing industry no longer needs to be convinced of the value of science. The same cannot be said of much of the building contracting industry.

The universities need real support and not platitudes about the need for reform from the building industry, if architectural and building education is to flourish. In return the universities must produce more architects who are really interested in the physical processes of building, so they can understand the very real problems faced by the contracting side of the industry. Building production must be given a much higher priority in the educational syllabus in schools of architecture than at present.

Clearly, in the face of the vast field of knowledge which already exists about Building Science, one man can do no more than till a small plot and some choice of action is inevitable. As my main responsibilities lie at the moment in the sphere of architectural education, I must select those aspects of the subject which I believe to be of most value to the architect. I personally believe architecture wants a new human orientation, and I am going to concentrate on those sciences which deal with man in relation to his environment, though clearly building materials and design for production will also need proper reconsideration in architectural syllabuses. The relative failure so far of functionalist architecture has resulted from the fact that the architect's field of knowledge has been too narrow to define the human functions of a building adequately. We have had an aesthetic of functionalism instead of buildings that function. Architects must learn that what superficially looks right, may in fact be wrong in human terms, for architecture is not merely a visual art.

### Fields of Research

Potential fields of research are almost too numerous to list. However, being a scientist, I shall do what I am interested in because this is the only way of working in scientific research. Here I particularly hope to be able to extend my studies in the field of engineering, meteorology, and to explore some of the problems about which we now know very little. May I give you a few simple examples of our present ignorance in these directions?

Nobody knows how water reaches the surfaces of a building, yet rain penetration is one of the most serious design problems encountered in building. Nobody knows how the climate round tall buildings differs from that round low ones, yet we are building higher and higher each year. Nobody really understands the microclimates of our cities, and town planning is carried on in complete ignorance about the possibilities which exist for improving the physical environment by correct planning. For example, how much of the existing expert meteorological knowledge about air pollution has yet penetrated the town planning offices of Great Britain in any significant way affecting physical planning? Our present knowledge of the pattern of wind flow round buildings is surprisingly crude. Extensive wind tunnel studies are required to clarify this problem.

### Need for Leadership

A lively research school could do much to make a Department of Architecture a really exciting organisation in which to teach and to be taught. If we are to attract more of the best architectural minds to the universities of this country, we must make University Schools of Architecture the places at which it is recognised that the most vital architectural thinking in the country is taking place. To do this, I believe architecture must be made more of an intellectual adventure and less of a mystique. The University Schools must lead and not follow the architectural profession.

I am honoured that this University should have appointed me to be the first holder of the new Chair of Building Science, and I hope I will prove worthy of the task. As an ambassador from science to the arts, I am deeply conscious of my responsibilities and I hope as the years pass this project will grow, develop and bear fruit. Sir C. P. Snow has made us conscious of the divided world in which we academically live. I have always struggled to live in both worlds in the attempt to reach some personal unification of outlook. It has often been difficult, but I am glad I have persevered, but I cannot do my work without breaking across the conventional academic barriers.

Perhaps, in a hundred years time, when building technology has fully developed as an academic subject, there will be as many professors of different branches of building science as there are professors of different branches of medicine today. This would not be out of keeping with the national scale of activity in architecture and building construction or its importance in determining the quality of our daily lives.

## *The Application of Standards*

*Engineers' Conference, 1961*

THE SEVENTH ANNUAL CONFERENCE of engineers and others concerned with the application of standards, is being held this year on May 9 and 10 and will be opened by the Rt. Hon. Viscount Hailsham, Lord President of the Council and Minister for Science. It has been decided this year to hold a two-day meeting, with parallel sessions on the second day, to give greater opportunity for discussion.

The first day of the conference will consist of plenary sessions at the Connaught Rooms, London, when Sir Stanley Harley (Coventry Gauge and Tool Co. Ltd.) will take the chair. After the formal opening by Lord Hailsham, a contribution on the trades union viewpoint on industrial standards will be given by Mr. G. Doughty of the Association of Engineering and Shipbuilding Draughtsmen. Papers will also be given on 'An Integrated Standards Programme in the Company' (Mr. F. E. Butcher of Joseph Lucas Ltd.); 'Standards in Product Development (Electronics)' (Mr. D. F. Egan of Mullard Ltd.); and 'Standards in Market Research and Sales' (speaker to be announced).

The second day's programme, to be held at British Standards House, will consist of three parallel sessions in the morning and three in the afternoon, to discuss in smaller groups various topics, including: The application of a standards system in a smaller company; steel—variety reduction by manufacturers and users; standardisation in fields where techniques are advancing rapidly; standardisation in a 1-off and batch production company; and the unified screw thread in British industry.

# The Educator-Architect

## Bridging the Gap in an Ever-Changing Environment

*A one-day seminar on 'Professional Responsibility' was held at the new School of Architecture of the University of Manitoba, Winnipeg. It formed part of the 53rd annual assembly of the Royal Architectural Institute of Canada held in that city during June 1960. The chairman at the seminar was Mr. James Strutt, of Ottawa, and the moderator, Sir Basil Spence, OBE, RA, PPRIBA, who was at that time visiting Canada at the invitation of the Canadian Institute. Of the six papers given and subsequently reported in full in the July issue of the RAIC Journal, we reproduce the address by Mr. John Bland, of Montreal. Mr. Bland discussed the rôle of the teacher of architecture in the light of the situation of modern practice and further professional responsibilities.*

AS TEACHERS we have responsibilities in relation to the profession and I suppose each of us could say specifically what they believe them to be, but I think it would allow less misunderstanding to say what we do and therefore show what we unconsciously regard as our responsibility rather than to recite a number of desirable objectives such as the whole man and so on.

Schools are concerned with assisting a small group of gifted young people to develop an understanding of building design and to provide them with some knowledge and attitudes which we feel are necessary to the process of becoming an ideal architect. I mention ideal because practice as seen from the schools tends to be stereotype. We only take people who are extremely able minded. A 70 per cent average is the new McGill minimum for entrance in the school leaving papers. The Ecole d'Architecture de Montreal requires a BA degree; British Columbia now requires three years of Arts.

We give them fundamental mathematics and physics in preparation for analytical work and for training their minds. We give them rather a lot of history of architecture to show them the solid remains of the civilisations that have produced our thought and feeling. We teach them to draw and we teach good practice in building construction because above all we believe architecture is fundamentally good building. 'How do you build it?' is the basic question.

We teach that design evolves from construction, exploring how space can be built for human use and finally how spaces can not only be built well to meet social needs usefully but also meaningfully, which perhaps is the real creed of architecture.

### Ability in Design

We continue with more elaborate tools of structural analysis and mechanical matters and questions of practice. We also attempt to understand environment by courses in civic design and town planning. The objective is the production of a thoughtful adaptable person capable of becoming a competent architect—with the proper amount of practical experience. In all the schools I know, ability in design is the criterion both among the students and staff—perhaps this is to be regretted because the gifted designer is rare.

Nevertheless the daily assignment of the student's progress is made in terms of design. The able designers are considered, by staff and students alike, as the best students. They receive the prizes and go on and on to higher academic heights. Thus is appears that we consider the training of designer to be our primary responsibility.

This may be questionable but it does show that we feel architecture itself to be the most important thing in the curricula, as design and architecture are largely synonymous, which suggests that the schools regard *architecture in its broadest scope* as the primary responsibility of architects and therefore the chief professional responsibility.

### Aims of the Schools

In addition to work with the students, most schools of architecture are, in one way or another, concerned with pushing the profession along the lines which theory of design suggests. Notions of functionalism in preference to merely picturesque architecture, structural expression, realism as opposed to historical fancy, organised public housing rather than chance speculative building, town planning rather than thoughtless subdivision have all been cries first heard in schools of architecture.

All of this indicates that we regard criticism of practice and suggestions to practitioners as being something of our responsibility. To this end we have set up graduate courses in Town Planning and Housing and we have been concerned with public lectures, the preparation of reports upon public matters, research to some extent, and the writing of books.

Again, architecture in its broadest sense is what we strive for. Do we in any way bridge a gap in the ever changing environment? Encouraging students to be questioning, adaptable and to have some fundamental competence are our objectives and these we believe are the right attitudes and skills with which to meet new situations. 'To build technically perfect and socially useful buildings fitting gracefully into their surroundings' is a reliable goal, good for any gap or crossroad or in any changing circumstance.

I mentioned the training is towards the ideal architect, that is, the architect who stands independently between the client and the builder. But the actual combinations of these three persons—client, architect and builder, provide the real scope of the situations of practice upon which to measure professional responsibility or the production of architecture.

1. Separately, client / architect / builder, is the ideal.
2. The client-architect combination with the builder separate might be called the corporation deal, the architect in public service and so on.
3. The client separate with the architect-builder combination is the package deal, the well known bogey.
4. The client-builder combination with separate architect might be called the promotional deal which we hear a bit more about in Montreal.

In each situation if the architect is competent and intent upon producing architecture in the broad sense, one feels the public can be well served and good architecture can result, but in the present circumstance, good architecture is not always the result of what is done, and somewhere in the process there must be hitches. I believe the fault lies either in the *competence* of the architect or in his inability to play his proper *rôle* in the various situations. Thus, in my view, the competence of the architect, as well as his ability to be effective in the situations of modern practice, are further professional responsibilities which we all share.

In the schools we have a clear picture of what we should do in part of this dilemma. But how we can help the architect in practice to be more effective in circumstances which are not ideal, is an area that needs some exploration.

# Building in the City

## Barbican Re-Construction Work to Start

MR. LESLIE BARNETT PRINCE, chairman of the Rates Finance Committee of the Court of Common Council of the City of London, told the Court, at its meeting in the Mansion House on March 23 that much of the land required for redevelopment of the Barbican area had already been purchased.

'During 1961-62, the work of site clearance will proceed and the first contracts for this work are on the point of commencing,' he said, in presenting the rate estimates. 'The architects and other expert consultants appointed to act for the Corporation have prepared a time-table for completing the scheme during the next seven years.

'It is gratifying that at long last it is proving possible to commence work on this large area of land which has been lying sterile for some twenty years, and in a short time it should be possible for the ratepayers to see the work of reconstruction started.'

The Golden-lane scheme was nearing completion and, although the income did not balance expenditure, the deficit should be less in the forthcoming year than for the present one because of increased income from rents. On the Avondale scheme, loan charges to meet construction costs would be increased by about £30,000 for 1961-62 and the flats would not be completed and let during the year.

In addition, the committee's programme of reconstruction or improvement of the older housing estates owned by the Corporation was continuing.

# Building by Local Authorities

## County Councils Urged to Consider Advantages of Co-operation

FROM A CORRESPONDENT

LOCAL EDUCATION AUTHORITIES must accept the fact that in the years ahead they will continue to find themselves as a struggling competitor for the limited resources of the building industry. This is one of the views expressed by the education committee of the County Councils Association in a memorandum of evidence to a sub-committee of the Select Committee of Estimates now examining education estimates presented to the House of Commons.

The County Councils Association committee point out that the modern trend is towards concentration in all forms of industry and that all but the very large authorities are not in a strong bargaining position.

The committee suggest that ' in view of the undeniable advantages ' that have accrued to the authorities who have co-operated in the consortium arrangements initiated by the Nottinghamshire County Council, other authorities should seriously consider the possibilities of forming other co-operative ventures of a similar kind. ' Those advantages are not only financial, but include speedier erection of the buildings and mutual benefit from the sharing of architectural skills and experience,' the committee declare.

In a note on new arrangements to be made to secure maximum value for money and better methods of control in school building the committee express the hope that from now on there will be much less need to apply the unsatisfactory expedient of instalment building or for over-hurried last-minute adjustments.

They state: ' It is, however, easy to be over-optimistic. In many areas the race against time continues and new population and industrial developments will continue to create pressing demands. Moreover, the remodelling of existing premises, which will play a steadily increasing part in school building programmes, affords no less opportunities—and perhaps even more—for achieving genuine value for money.'

Consequently, the Association, though not concerned to conduct a post-mortem and having acknowledged that improvements are continually being made, are anxious that the lessons learned from past experience should not be forgotten.

### Advance Planning

Another point the Association makes is that adequate advance planning should be ensured so that authorities may know at least two years before a building year starts what jobs they will be able to carry out. This should be possible under the new arrangements for major building ; the arrangements for minor building have also been slightly improved recently, but the Association regret that it has so far been impossible for the Minister to apply the same arrangements to both major and minor programmes.

In their view, the cost per place controls need to be related to the conditions under which a project is initiated. This means that the cost per place limits should be constantly adjusted to suit any changes in the building index so that a school of which the plans and specifications were such that it could reasonably be expected to be built within the cost limits at the time when planning started, should not suffer or be held up owing to subsequent rises in building costs.

Four other points are made by the Association in their memorandum are:

(a) Some flexibility in the application of the cost per place limits is needed to meet the difficulties encountered by authorities in whose areas, either temporarily or permanently, building costs are demonstrably higher than the national average. The Association are ready to suggest how this might be done.

(b) There is at present an over-rigid distinction between major and minor works. For example, if an authority find that what they thought would be a minor job develops during the planning stage into a major job, they should not be prevented from carrying it out within their allocation for minor building. The Association hope that it will soon be possible for authorities to be given a total allocation to be spent on major or minor building as they think best.

(c) The Government Departments should achieve a simplification of the present administrative and financial arrangements whereby it is extremely difficult to combine in a single job the resources available under different capital investment programmes. This should also include means for effective co-operation between local education authorities and local authorities in, for example, the provision of swimming baths, playing fields, sports centres, etc.

(d) If the principles of advanced planning and avoidance of detailed controls, largely followed by the Ministry of Education, were to be more widely extended into other branches of local government, authorities could deploy their architectural staffs more efficiently.

### Increase in Costs Sanctioned

*Note:* At their meeting on March 2 the executive committee of the County Councils Association were told that the Minister, after reviewing the limits of cost for new schools and other educational buildings in the light of the recent agreement on a new wages structure for the building industry, and of the trend of building costs generally, had decided that increases were necessary if authorities were to maintain a reasonable standard of building and avoid excessive future maintenance costs. The new limits represented an average increase of about 7 per cent.

It was also reported that the department were ready to consult the Association about further proposed changes in the administrative and costing procedures, including the introduction of a cost formula for the remodelling of primary schools.

## Building Delays in West Sussex

*Council to Abandon its Fixed Price Tendering Policy*

WEST SUSSEX COUNTY COUNCIL is to put an end to its policy of inviting fixed price tenders and to go out in future for tenders on a rise and fall basis. This decision has been brought about by the knowledge that builders in the area have been holding up county council work by their unwillingness to tender on fixed price contracts, resulting, it is reported, in extensive delays, particularly in the case of four school building programmes —at Fernhurst, Washington and two at Crawley.

The reluctance of builders to enter into a fixed price contract is due to the possibility of substantial losses if, by the completion date, the cost of labour and materials has risen. On large contracts this problem could be a serious one.

The County Council's decision to alter its policy will affect all work in excess of £2,000. The finance committee has already given its approval and as a result work will start on all four of the schools mentioned within the next two months.

### C and CA Library Services

THE SERVICES of the Cement and Concrete Association's reference library and photographic department are available to inquirers during normal office hours, at 52 Grosvenor-gardens, London, SW1.

## Sale of Council Houses

*Birmingham to Build 110 for Young Couples*

BIRMINGHAM CITY COUNCIL'S general purposes committee, at its meeting on March 13, approved a scheme to build houses for sale to young married couples. It is proposed to build 110 houses on a Corporation-owned site at Valley Farm, Rednal, and sell them to Birmingham couples for £2,125, with a ground rent of £25. 100 per cent mortgages are to be available probably payable in 30 years with interest at 4½ per cent.

ALD. HARRY WATTON, chairman of the general purposes committee, said that the houses would be built either by the Direct Labour Department of the Corporation or under open tender in the same way as ordinary municipal houses.

The scheme was opposed by Conservative members of the general purposes committee, mainly on the ground that the land should be sold for private development. The site cost £4,500 in 1952.

*Successful Stourbridge Scheme*

STOURBRIDGE TOWN COUNCIL'S scheme for selling municipal houses has, since it it started last June, attracted 199 buyers and brought in £138,249. The chairman of the housing committee, CLLR. F. E. SPILLER, announced these figures on March 13.

# The Week in Parliament

From Our Own Correspondent

## The Easter Recess

BOTH HOUSES OF PARLIAMENT adjourned on March 30 for the Easter recess and sittings will resume on April 11. The Chancellor will make his Budget statement on Monday, April 17.

## Health and Safety in Shops and Offices

THE GOVERNMENT will be introducing next session their legislation on health, safety and welfare in shops and offices and certain other premises, MR. JOHN HARE, Minister of Labour, announced on March 20. He explained that with this comprehensive legislation on the way it was not intended to make regulations under the powers of the Offices Act, 1960, which was a private measure introduced by Mr. Richard Marsh and passed in the last session.

This Act would not have come into operation until January 1, 1962, thus allowing time for various bodies to be consulted and for the necessary arrangements for enforcement to be made. Mr. Hare told Mr. Edelman that the memorandum to certain professional bodies in connection with the Bill the Government intended to introduce, was first issued on December 22, 1960. A great deal of information and consultation was required before it was possible to consult the House. Some 81 representative organisations had been contacted and another 39 had been asked for their views.

MRS. BRADDOCK asked if fire authorities had had the memorandum and whether they had been asked for their suggestions about fire prevention in relation to the pending legislation. MR. HARE said they were being consulted and he promised to listen to all the representations that they made. He hoped they could make the legislation effective and practical.

The regulations under the Offices Act would have covered overcrowding, the provision of efficient fire-escape systems, first-aid equipment and the provision of proper lighting, ventilation, heating and cloakroom facilities. The new legislation will extend this to shops, offices and other premises and also be much more extensive in scope. Experience of big fires is being taken into account.

## Pledge on Land for Housing

AN UNMISTAKABLE PLEDGE that housing progress should not falter through lack of land was given on behalf of the Government in the Commons on March 20 by SIR KEITH JOSEPH, Parliamentary Secretary, Ministry of Housing and Local Government, when he replied to Opposition criticisms of housing policy.

He explained that for those local authorities who, after charging sensible rents, could only go on building by imposing excessive rates, there was already additional subsidy available. Under the Housing Bill they were seeking to increase it. Against squalor, overcrowding and lack of modern amenities, the Housing Bill should provide a new weapon but it must be left to the local authorities to recruit the necessary extra skilled specialist staff and summon the necessary vigour for the huge task in front of them.

He said that as far as they could judge nearly three-quarters of the population was decently housed. In the last three years the average number of slums cleared had been about 57,000. Although last year there were 130,000 improvement grants, the Minister was not yet satisfied. There were still at least 600,000 slums to come down and several million non-slum houses without modern amenities.

For the Opposition MR. JAMES MACCOLL pointed out that housing completions in 1960 had been fewer than in 1954. He complained of the high cost of land. There should, he said, be a determined effort to relocate people and industry away from London and the southern area. He maintained that of 162,000 houses built by private enterprise in 1960, 160,000 were for owner-occupation, and said the Government had failed to maintain house building standards and were encouraging builders to build houses which would be slums in 20 years.

Replying to this, SIR KEITH JOSEPH said the Minister was extremely keen to improve the design and standards of private enterprise housing and he had recently reintroduced his housing medal to reward the best design. No local authority with a serious housing problem was being restrained by the Government.

Replying to Opposition suggestions that the Government had failed to do anything to maintain building standards, MR. HENRY BROOKE, Minister of Housing and Local Government, stressed at the end of the housing debate on March 20 that the Government had given their full support to the National House Builders' Registration Council, a body which existed to kill jerrybuilding in this country. 'I am glad to say,' he added, 'that a steadily increasing percentage of all private houses built carries the certificate of that Council. Moreover, I have at this moment a sub-committee sitting on this very question of the design of houses.'

## Direct Labour Debated

CONFLICTING political views on direct labour forces were expressed at question time on March 21 but MR. HENRY BROOKE, the Minister of Housing and Local Government, refused to be drawn into any controversy. A Conservative, MR. WILLIAM CLARK, asked him whether, in view of the increase in building operatives employed by local authorities between 1951 and 1959, he would initiate an inquiry to ascertain from local authorities the total value of work carried out by direct labour forces in 1951 and 1959.

MR. BROOKE: 'The Minister of Works already collects information from which it is possible to estimate the cost of work carried out by direct labour forces in Great Britain. The figure was about £107m. in 1951 and £200m. in 1959. This represented in each case, eight per cent of all building and civil engineering work carried out during the year.'

MR. CLARK asked if the Minister was aware of the grave disquiet among ratepayers throughout the country because local authorities had these direct labour forces? Did he not agree that a reduction in the numbers of these labour forces and in the amount of work they did, would be a step in the right direction towards halting this 'creeping nationalisation' of a major industry?

MR. BROOKE said it was important to distinguish between direct labour forces used for maintenance work, much of which could be done only with difficulty otherwise, and direct labour forces used for new construction. The remedy in every case rested with the ratepayers themselves at local government elections.

MR FRANK ALLAUN, a Labour member, said that in many cases direct works departments were saving ratepayers hundreds of thousands of pounds. In one contract alone in Salford, £130,000 was saved and that, taking into account interest over 60 years, the total came to over £500,000. The job of building 700 flats in this case was completed not in three years but 18 months.

MR. BROOKE: 'There is a great deal of argument about this. Many people tell me that direct labour saves money while an equal number—if not a larger number—tell me that it wastes money.'

## National Theatre Decision

THE GOVERNMENT'S decision not to proceed with the building of a national theatre on the South Bank at a cost of over £2m. was announced by MR. SELWYN LLOYD, Chancellor of the Exchequer, in a statement on March 22. He said the Government believed that there were better ways of using the resources which could be made available to help the living theatre and he stressed that the national theatre project would require a heavy annual subsidy.

Explaining how the Government were ready to make additional funds available through the Arts Council to assist the Old Vic and the Royal Shakespeare Theatre, Stratford-upon-Avon, the Chancellor said the assistance would include capital provision for improving existing buildings, particularly the Old Vic building in York Road. The Government were also prepared to increase support to provincial repertory theatres and this would include contributions towards the cost of renovating existing theatres and building new ones. He was inviting the Arts Council to submit proposals to him on these lines.

## Other Business

### Apprenticeship in Scotland

MR. LAWSON asked the Minister of Labour on March 20 what was the ratio of apprentices to journeymen in the Scottish building industry in 1954, 1957 and 1960 respectively.

MR. JOHN HARE wrote: 'The Ministry of

Works census of the industry shows that the ratios were 1:3.5 in 1957 and 1:3.67 in 1959. Comparable figures are not obtainable for 1954 and the 1960 figures are not available.'

MR. MANUEL asked what was the number of apprentices who started in the Scottish building industry in each of the past three years; and what proportion of those who commenced apprenticeship in that industry normally completed it.

MR. HARE wrote: '2,339 started as apprentices or learners in 1958, 2,420 in 1959 and 2,495 in 1960. Figures are not available to show the proportion who complete their training but I understand it is the great majority.'

**Technical Assistance Overseas**

The setting up of a new Department to be called the Department of Technical Co-operation was announced by the PRIME MINISTER on March 21, when he disclosed the outcome of a review of the governmental arrangements for providing technical assistance to overseas countries. He felt sure the House would regard this as a good plan. 'We shall be able to mobilise our forces more effectively both in collecting the right people, persuading industry to release them, perhaps, and various organisations to make them available and in sending them to the right places.'

**Steel Plant for East Germany**

MR. ARTHUR LEWIS asked the President of the Board of Trade on March 21, whether he was aware that the German Democratic Republic wanted to place a £40-£50m. order for a steel plant with British firms, and that the firms were anxious to sign this contract but were unable to secure the support of the Export Credits Guarantee Department; whether he would ascertain the reason for this.

MR. F. J. ERROLL, Minister of State, wrote: 'I understand that discussions on this project between the East German authorities and a United Kingdom firm are continuing. I should not wish to comment further on business which is still under negotiation.'

**Housing Densities in Greater London**

MR. SORENSEN asked the Minister of Housing and Local Government on March 21 to what extent the building of many-storeyed domestic flat dwellings in extra-Metropolitan boroughs had modified the previous policy of reducing the population of certain of those boroughs; approximately how many persons had been rehoused during the last 10 years in flat-dwellings of more than two floors within London and the extra-Metropolitan area; what was now considered to be the desirable maximum density of persons per acre in these areas; and how much land had been made permanently open by the provision of this type of dwelling.

MR. BROOKE: 'There has been no material change from the objectives set out in the approved plans for the extra-metropolitan boroughs. 123,155 flats in buildings over two storeys have been erected by local authorities in the London housing region in the past 10 years, but I have no information about the number of people rehoused in them nor about the number of such flats built by private enterprise. The zoned densities in the development plans in London and the extra-metropolitan areas vary from 30 to 200 persons per acre. I do not think it is practicable to suggest any particular density as a desirable maximum; nor can I give any figure for the last part of the question, though one of the objects and results of building higher is to leave more space open around the buildings.'

# National Federation

## Local Authorities Urged to Release Land for Private House Building

MR. FRANK RUSSON, FIOB, National President, speaking at the annual dinner of the North Western Federation of Building Trades Employers at Blackpool, on March 24, said it was evident from the recent housing debate in the House of Commons that some local authorities excused their inability or unwillingness to build more houses on the grounds that interest rates were too high. This was nonsense, and it was noteworthy that the Government took the view that interest rates were not too high if local authorities adopted sensible and realistic rent policies instead of keeping their rents at too low a level.

'If, despite the adoption of more realistic rent policies,' Mr. Russon continued, 'local authorities still find that they cannot provide homes in the required numbers I urge them to make the land they hold available to private enterprise house-builders who will, I know, be only too ready to build the houses and in less time. This, I suggest, is a sure way for local authorities to reduce waiting lists, provide homes at no cost to the local rates or Exchequer and ensure that municipal houses go to those with the greatest need.

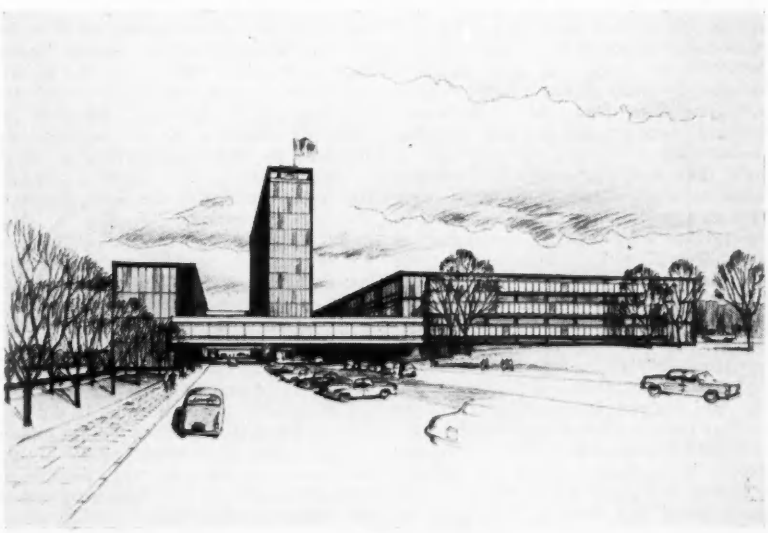
'Today some local authorities hold land scheduled for housing which is virtually sterile so far as the national housing programme is concerned. Although the local authorities own the land, they are apparently unlikely to build on it themselves in the reasonably foreseeable future. At the same time, they will not release it so that private developers can go into action. If this situation continues, there is a risk that the national housing programme as a whole could slide into decline. Therefore I say to the local authorities: "Give us the land, and we will do the job."'

## South African Builders' Visit

ON MARCH 16 the representatives of a party of South African builders visiting this country on a study tour were received at the London headquarters of the National Federation of Building Trades Employers by Mr. H. Ford, President of the Federation of Registered House-Builders, Mr. D. C. W. Piercy, Junior Vice-President, FRHB, and Mr. P. E. Trench, OBE, Director of the NFBTE.

After welcoming the group, which included Messrs. H. Ludeker, S. Langston, M. van Biene and A. Routier, of Johannesburg, the President briefly reviewed the current housing position in this country, with particular reference to private enterprise activities. The visitors had expressed special interest in the results of National Homes Week, sponsored by the FRHB in 1960, and at the President's request, Mr. W. D. Bryant, public relations officer NFBTE, addressed them on this subject.

*An artist's impression of the approach to the new head office development to be built for Pilkington Brothers Ltd., just outside St. Helens, Lancashire, on the main Liverpool road. The architect is Mr. E. Maxwell Fry, CBE, FRIBA. The £2½m. contract has been awarded to Holland & Hannen and Cubitts (North West) Ltd.*



# Town Planning Decisions

## Working Scheme Allowed by Minister

FOLLOWING appeal, Sir Lindsay Parkinson Ltd. have been allowed by the Minister of Housing and Local Government to build 42 flats and maisonettes, with 39 garages, on the site of 'Laleham,' Chobham-road, Woking, Surrey, after demolition of the property.

The Minister states he agrees with the Inspector who conducted the inquiry that the proposal is an acceptable scheme that could be carried through without changing the character of the immediate neighbourhood or causing its residents serious inconvenience.

The consent is subject to the conditions that siting, design and external appearance of the buildings, and the means of access, shall be agreed with the local planning authority.

## Traffic Problems of Long Cul-de-Sac

THE MINISTER OF HOUSING AND LOCAL GOVERNMENT has upheld the decision of Epsom and Ewell Council in respect of land which New Ideal Homesteads Ltd. wish to develop at 452 Chessington-road, West Ewell. His decision follows a local inquiry on an appeal against the council's refusal, and he makes this without prejudice to the submission of a fresh application for planning permission to carry out residential and ancillary development on the same site.

New Ideal Homesteads Ltd. sought permission to construct a new road and sewers, and to build four blocks of four maisonettes with sixteen garages and one detached house and garage on the land. At the inquiry it was stated on their behalf that the plan was merely the first stage of the comprehensive development of some 10 or 11 acres, which could be described as useless back land. The back land at the rear of numbers 442 to 436 Chessington-road had since been acquired under contract by the appellants and this, with the appeal site, totalled just over four and a quarter acres. This meant that the second stage of development and the widening of a proposed cul-de-sac could take place if the Minister sanctioned the present application.

At the inquiry Mr. D. R. Grimes, Deputy Town Clerk of Epsom and Ewell Council, submitted that the type of development proposed was what planning control had been designed to prevent. In spite of the fact that the appellants' proposal was the first stage of an overall plan for the area, he thought it could not stand on its own. The minimum street width required by the Minister was not even provided and it was felt there would be traffic and parking difficulties with the proposed long cul-de-sac. The Minister agreed with the findings of his inspector, Mr. V. R. Fothergill, that the site was inadequate in width to allow satisfactory development to a depth of over 700 ft. from Chessington-road.

Number 452 Chessington-road is one of those involved in the so-called 'land grab' controversy of 1951, when owners successfully fought against a council proposal to acquire part of the long gardens of 30 houses to build a council estate.

# Builders and Rights of Way

## Limitations to Pedestrians

*From a Legal Correspondent*

AN INTERESTING CASE for builders is reported as *Weston v. Lawrence Weaver Ltd.* The owner of a property known as Elibank at St. Mary's Hill, Sunninghill, Berkshire, had a right of way over a private road immediately north of his property which formed the only vehicular access to his property. The owner of the soil of the private road was unknown. Immediately north of the private road the defendant company, who were builders, had their property and also had a right of way granted to them when they bought the land 'as at present enjoyed' over the private road.

On their land the defendant company began building 49 houses on its property with an access road which ran parallel to the private road but at a distance of about 20 feet from it. In course of these operations, they removed the bank and the hedge on the north side of the private road and filled in the ditch. As a result, the plaintiff brought an action against the defendant company for nuisance and made these allegations. He claimed that they had obstructed the right of way by building materials intended for use on the estate and had wrongfully and excessively used it for passing, parking and turning of lorries and other heavy vehicles. He also claimed that they had churned up the surface of the right of way and wrongfully removed the bank and hedge and filled in the ditch.

When the case came before the courts, Mr. Justice Linton found that the defendant company's right of way was limited to foot passengers and business visits connected with the disposing of timber and horticultural purposes connected with the good management of the estate. Therefore they had no right to use the private road for lorries connected with the building of houses, and therefore he awarded damages of £50 because the builders, by their obstruction on three or four occasions, had caused a substantial interference with the right of way to the plaintiff's estate.

But although the plaintiff could claim for obstruction he was not entitled to claim for damage to the surface of the road by wear and tear caused by extra traffic from the building site. The builders' traffic was responsible for two-thirds of the wear and tear of the road on the evidence; although the wear and tear made the road difficult, it did not interfere with his right to pass and repass. So far as the hedge, bank and ditch were concerned, no damages were payable as his Lordship found that they belonged to the defendant company.

## Basic Materials

*Price Increases in February*

THE AVERAGE prices of basic materials and fuel purchased by the manufacturing sector increased slightly in February after the limited downward shift between November and January. The price index of basic materials and fuel showed an increase to 100.5 (1954 = 100) from the revised estimate for January. The provisional figure for building and civil engineering materials for February at 149.0 shows an increase of 0.2 per cent over January. The house-building materials index showed a provisional increase of 0.3 per cent.

| Commodity | Feb., 1960 | Jan., 1961 | Feb., 1961 |
|---|---|---|---|
| Coal ... ... ... ... | 140·5 | 147·0* | 147·0* |
| Slates ... ... ... ... | 136·1 | 139·2 | 139·2 |
| Refractory goods, including bricks ... ... ... | 126·8 | 128·7* | 129·0* |
| Non-refractory goods, including bricks ... ... | 113·4 | 121·6 | 121·6* |
| Building bricks, common, other than fletton, ex-works ... ... ... | 117·2 | 123·5 | 123·5* |
| Building bricks, fletton common, delivered ... ... | 105·2 | 117·5 | 117·5 |
| Glass (other than containers) | 121·9 | 122·8 | 123·2* |
| Cement, delivered ... ... | 113·2 | 114·6 | 115·3* |
| Cast stone and cast concrete products ... ... ... | 102·4 | 103·3 | 103·3* |
| Synthetic resins and plastic materials ... ... ... | 89·2 | 87·1 | 87·1* |
| Paint for building and decorating ... ... ... | 108·7 | 108·1 | 108·9* |
| Steel sheets ... ... ... | 126·5 | 126·3 | 126·1 |
| Aluminium and aluminium alloy products (extruded and drawn) ... ... ... | 127·4 | 130·6 | 132·3 |
| Galvanised cisterns, tanks and cylinders ... ... | 122·1 | 126·9 | 126·9 |
| Home-grown hardwood ... | 96·3 | 95·4 | 96·8 |
| Wallpaper ... ... ... | 119·8 | 123·5 | 123·5 |
| Aluminium, virgin ingot, delivered ... ... ... | 119·2 | 119·2 | 119·2 |
| Copper, ex-ship, wharf or warehouse ... ... ... | 106·2 | 88·5 | 90·0 |
| Lead, ex-ship, wharf or warehouse ... ... ... | 76·6 | 66·1 | 67·7 |
| Zinc, ex-ship, wharf or warehouse ... ... ... | 113·5 | 101·2 | 105·8 |
| Imported hardwood (ex-yard or wharf) ... ... ... | 106·5 | 112·6 | 112·5* |
| Imported plywood (delivered to consumers) ... ... | 95·8 | 99·5 | 99·5 |
| Imported softwood (delivered to consumers)... | 101·7 | 107·3 | 107·3* |

* Provisional.

### First-Aid Training for Factories

THE PROVISIONS of the First-aid (Standard of Training) Order, 1960, are explained in a leaflet, Ministry of Labour Form 2041 (HMSO, price 4d.), published on February 22. Information is given about courses of first-aid training generally available and the types of certificates issued by the training organisations.

# Book Reviews

## Corbusier's 'My Work'; 'Building Economics and Cost of Planning'; 'Simplified Design of Reinforced Concrete'

*** Books noted in these columns may be obtained on application to the Book Dept., 'The Builder,' 4 Catherine-street, Aldwych, WC2. Cash (to include postage on books to the value of 10s. 9d.; over 10s., 1s. 6d.) should accompany the order.*

MY WORK. By Le Corbusier. (London: The Architectural Press.) Price 84s. net.

THIS BEAUTIFULLY PRODUCED book is one for the Corb devotee. Written and designed by the master himself, who has selected all the illustrations and supervised all the page layouts, it is not so much an autobiography as an outline record of the author's career, ideas and methods of working, illustrated by a great number of sketches (many of them mere scrawls), technical drawings, abstract paintings and sculptures and photographs of executed buildings.

It is in two parts, the first a 'chronology' under the dates 1900-1918, 1919-1939, and 1940-1960, and the second entitled 'A Profession,' with five subsections, which include reflections on drawing, painting, sculpture, and architecture and town and country planning. The book has been translated by Mr. James Palmes and has an introduction by M. Maurice Jardot.

Visually it is a rather disconcerting book owing to the juxtaposition of such a wealth of illustrations of varying character, scale and media, and the differing type sizes and measures, some of which are so wide that the eye quickly tires from the strain of reading. The writing, too, is oddly dry and staccato in style. One gets the impression of a rather prickly personality, at odds with the world and often with his prospective clients—an impression, it is fair to add, that is softened by M. Jardot's sympathetic introduction. Were it not that the book has a distinct value as the expression of Corb's personality, one would wish that its literary and typographical aspects had been subject to supervision by others.

The book includes many fine photographs of notable buildings such as the Unité d'Habitation, Marseilles, Ronchamp, the Law Courts and Secretariat at Chandigarh, and the Ahmedabad Museum, but no plans are given of these and there are few interior views. How one longs to know something about the internal economy of these remarkable buildings. There is room, indeed, for a book giving a straightforward account of what Corb has done for the advancement of architecture and town planning, free from emotionalism and well illustrated by photographs and plans. In the meantime the Corb devotee, but not we fear the general or the non-committed reader, will no doubt revel in the master's exposition of his own work.

G. J. HOWLING

BUILDING ECONOMICS AND COST PLANNING. By C. D. Browning, ARICS. (London: B. T. Batsford Ltd.). Price 21s. net.

THIS IS THE FIRST TEXT BOOK to be published devoted entirely to the subject of building economics and cost planning and has been written by the lecturer in this subject at the Royal West of England Academy School of Architecture. The book deals in a very readable and easily understood way with such matters as the influence of cost on design, building economics, format of bills of quantities, approximate estimating and the subject of cost research and cost planning.

The text is to a large extent a digest of papers published on this subject since the war by the Building Research Station, the Ministry of Education, the RIBA cost research committee, and the RICS cost research panel. The value of the book to serious students would be much enhanced if it included a bibliography and if the documents which have inspired much of the information contained therein were acknowledged by the author. A study of the original papers on the subject and the reports of the various conferences and courses which have been organised by the professional institutions is essential to a complete understanding of the subject.

The author has rightly left it to his readers to choose between the various alternatives and to decide for themselves what is meant by cost planning and the extent to which this differs from the conventional approximate estimate. He has also dealt quite dispassionately with various methods of cost analysis and of recording cost information, a subject pioneered by Mr. Alan Davson in a paper on approximate estimating published by 'The Builder' as long ago as 1923.

The book is a useful and unbiased introduction to those interested in acquiring knowledge of new procedures of vital importance to the professions, and it will constitute a useful textbook for colleges and schools who are organising courses on this subject.

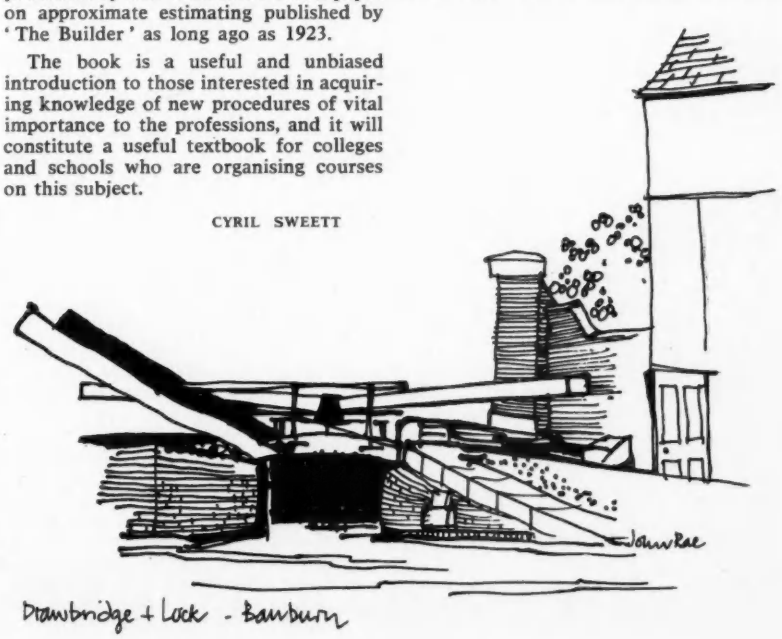
CYRIL SWEETT

SIMPLIFIED DESIGN OF REINFORCED CONCRETE. By H. Parker. (New York: John Wiley & Sons, Inc. London: Chapman & Hall Ltd.) Second Edition, price 52s. net.

AN IMPRESSIVE LIST of college and university adoptions bears testimony to the success of this work in America. Its value as a standard teaching aid and book of reference has already been substantiated since the publication of the first edition in 1943. There are many textbooks which bear the catchline 'simplified,' and which claim to present subjects in a manner to be readily understood without the acquisition of preliminary knowledge of advanced mechanics or higher mathematics. Some authors take a little too much for granted in this respect; not so Mr. Parker. His text is indeed a simple and concise explanation of the basic fundamentals of reinforced concrete, using for its practical examples the more common structural elements.

The present volume has been prepared, states the author, in compliance with recommended unit stresses and design procedure as stated in the current publication of 'Building Code Requirements for Reinforced Concrete' issued by the American Concrete Institute. A major portion of the work comprises illustrated examples of structural reinforced concrete members accompanied by similar problems for solution by the reader. Bar sizes are numbered; the practice of using all straight reinforcing bars instead of a mixture is explained; and the advantages of prestressed concrete are shown.

A valid criticism concerns the method of presentation. The text conforms with American standard abbreviations for engineering terms, and, since this is presumably the English edition, it may be difficult for the English reader to follow. An index or appendix giving the abbreviations and their standard British equivalents ought to have been added. A. D.



# Floor Finishing Materials

## Selection for their Use, Durability, Colour and Cost

*There are approximately ninety different types of flooring materials, including thirty to forty timbers, available for use in a variety of places. These range from simple, inexpensive granolithic to selected hardwood of high and enduring quality. In a lecture delivered at the eighth annual exhibition of floor maintenance methods and machines, held by Cimex Ltd. on January 31 at Seymour Hall, London, W1, Mr. Edward D. Mills, CBE, FRIBA, MSIA, discussed the selection of floor finishes with particular reference to their use, durability, colour and cost. Extracts from Mr. Mills's lecture follow.*

I PROPOSE TO DEAL with the subject on hand by breaking my remarks into a series of sections to discuss not only the choice of floor for different types of building—perhaps the least important part—but with the problem of flooring as a major part of any building. The first factor of importance is the expected wear of the material. Second, one must consider the question of noise; whether the location is a hospital or a noisy workshop. Warmth is another important consideration, especially where you have people standing for a long time. Next there is the resistance of the flooring material. How does it stand up to abrasion, for example, or spillage? One has also to consider the possibility of a jointless floor, or whether one with a large number of joints in the form of tile or slab will be acceptable. In many circumstances the joints in a flooring material will hold dirt or, in a hospital, germs.

I have left until last the other two main factors that one has to consider; colour and cost, because basically these are fairly easily dealt with. One knows pretty broadly what sort of colour range is available in most materials. If the colour is not suitable, and all the other requirements are, one must deal with the colour situation separately. One can, if necessary, change other parts of the building so far as this is concerned. It is quite wrong, I feel, to choose a floor material, of all materials, on the basis of colour. The practical problems are far more serious, and really far more important. Oddly enough, I have left cost to the very last because, although one can lay cheap floors that will last quite a long time, it is one of the places in a building where one can practise false economy. There are many other parts of a building where changes can be made without great difficulty, but the problem of replacing a floor that is worn out in half the time expected is very serious.

### Preparing the Base

With that broad picture in mind, we can see that there are a tremendous number of factors that one has to consider when choosing a floor for a particular purpose. The most important preliminary stage is that of considering the base upon which the floor is to be laid. A badly laid sub-floor can ruin any finish, no matter how expensive or well laid. Therefore, it is important to spend a few moments looking at the requirements of a sub-floor because it has a serious effect on the floor itself. Normally these days, of course, the flooring is laid on a concrete sub-floor, usually with a cement screed. It is in this base and screed under the floor finish that many of the troubles of modern flooring surfaces arise.

Let us look at one or two important points. The most important is that your floor screed should be level. If it is not, it can wear your floor surface far more quickly than the people walking on top of it. Another failing with many floor screeds is that they are carried out in too large an area and are not properly bonded to the concrete base. I have seen examples of large tiled floor areas where, upon walking over them, hollow sounds can be heard indicating that the screed and the floor finish have parted company. Usually the tile has adhered to the screed but the latter has parted company from the base.

### Forming a Key

There are two problems here. One is presented by the bad habit, in this country at any rate, of not carrying out the preparation work properly. It is absolutely vital to ensure that the sub-floor is scrupulously clean, that it is well hacked to give a rough surface, and again swept down and cleaned so that it can take the screed and give good adhesion.

For any large area of flooring, particularly in a factory or building of that sort, it is even advisable to use a mechanical hacking machine to get a really good key and ensure that the screed holds. For a large area of floor tiling, or similar finish, it is advisable to reinforce the screed with a thin mesh for greater stability and the avoidance of cracking between the screed and the slab.

Where large areas are involved, particularly with granolithic flooring, it is a good policy to use a power float. With this a really good, hard screed can be obtained. It can be laid almost monolithic with the concrete sub-floor and if a dry mix is used good adhesion can be achieved, giving a screed which will take a top surface and give a long life. All these things add up, in fact, to preparing the sub-floor and making sure that it is really suitable for the top surface. Among other things that have to be borne in mind in this connection is the need for protection against rising damp on floors which are in contact with the ground. This, in some ways, is a fairly new idea. Many recent failures show the necessity for a really reliable damp-proof membrane under the concrete to counter rising damp, which can affect the final floor finish. This is particularly true in the case of timber floors, where blocks which are kiln-dried to a particular moisture content are used, and which will readily absorb any moisture in the concrete sub-floor and rising through it.

The next matter of significance is the question of proper maintenance. Before a floor is used it should be protected. Once it is in use it should be maintained in what I would call a 'mild' manner. It is no use leaving any flooring material, whether tough or delicate, for a year and allowing it to collect a heavy layer of filth, then scouring it in a brutal way and hoping that the surface will be anything like what it was in the beginning. The treatment of any flooring material, whether concrete or a beautifully selected hardwood, must be planned to keep it clean regularly and maintain it at frequent intervals so that dirt, grit or other foreign matter is not allowed to work into the surface. Not only should a specialist firm be employed for the cleaning, or at least providing the proper implements, but proper advice should be sought from the manufacturer of the floor.

Now we get down to the problem of the floor itself: and what determines the floor to be chosen for a particular area. What is the biggest enemy of a floor? Before we look at particular flooring we ought to look at preventive measures which can help to minimise the damage which can be done to many surfaces. Obviously, the choice of floor is important, but the positioning of flooring is equally important. In many types of building the entrance, for example, has been floored with a quite unsuitable material. In my view, the entrance needs as much, if not more, attention, care and thought so far as the choice of flooring material is concerned as any other part of the building. It is the point at which the person using the building makes contact after leaving the street, where he has collected dust, grit and various other foreign materials which will gradually work into the surface of the floor. Another point in this connection concerns the placing of door mats. Not only should they be in entrances, by entrance doors, but it might also be sensible if the bottoms of staircases had some form of flooring which would clean the shoes of people coming into the building. The floors of lifts might also be treated in the same way.

### Granolithic and Terrazzo

What of particular types of floor, and where should one use them? We can divide the types into three main groups. First there is the stone type, the hard floor consisting of such things as stone, granolithic and terrazzo materials. These usually, by the very nature of the materials employed, and the way they are laid, are noisy and hard on the feet; but they are extremely useful for entrance halls and similar places. They are extremely easy to keep clean and can be laid in a considerable variety of colours and patterns. One of the important factors, however, especially with terrazzo,

is that there should be adequate provision for expansion joints. Many terrazzo floors are laid in very large areas and, within a very short time, the movement in the building and shrinkage in the terrazzo itself produces a fine network of cracks on the floor surface.

Then there are the cement, concrete and granolithic floors. These I have touched on briefly earlier. They are widely used in industrial buildings and are most effective when properly laid and sealed.

Within this particular category of hard floors, which are usually very durable and can be used for entrance halls, large stores, in markets and some parts of hospitals; where one has heavy wear and large numbers of people passing over them, one has natural stone. The important factor here is that one should consult the expert and make sure that stones of a similar character are laid together. Some are extremely hard, and some extremely soft. Mixed together they may look very nice, as a pattern, but the soft stone wears and the hard stone does not, resulting in a very uneven surface.

### The Timber Floor

The next category, the timber floor, is very popular, and used in a wide variety of buildings and can be laid in a great many ways. Reference should be made to the Forest Products Research Station or Timber Development Association to make sure that the floor selected will really serve its purpose. It is no use having a timber with a beautiful figure in it, just the colour required, only to find that it has no wearing qualities at all. The person specifying the floor should also learn a great deal more about the specification for the finishing of the floor. It is not good enough just to lay the floor, put some form of seal on top of it, and leave it at that.

One of the most popular materials in recent years has been cork. It is extremely pleasant in use, quiet, warm and resilient, and ideal in many ways for corridors: places where a pleasing floor is needed that is quiet and easy to the tread. This is a case, however, where the application of a preliminary seal is of vital importance, and where regular and conscientious maintenance at short intervals is a vital factor in the life of the floor. Cork tile is a flooring material which ought to be considered in relation to its place in the building. It should be kept away as far as possible from the entrances to the building, because it is the grit and dirt trodden into the surface that create the trouble.

### The Composition Floor

There are many varieties of composition flooring, magnesium-oxychloride being the best known. On the whole they are hard, colourful, jointless, relatively cheap, and have the advantage of being laid fairly thinly. One of the biggest problems is that they are subject to considerable movement. Expansion joints must be properly considered and properly laid out; a jointless composition floor will, without these, crack badly after a short time. They also have a peculiar habit of taking moisture out of the air. It must be remembered too that magnesium oxychloride and similar floors attack metal, and conduit or metal ducts in the screed or near the floor surface must be given a coat of bitumen for protection.

The other type used fairly widely in industry is the pitch mastic floor. This is prone to softening by oil or solvent waxes, and is not to be recommended where there is heavy trucking, where heavy benches are assembled, where people use furniture with pointed legs, or where stiletto heels are used. The latter are a menace to practically every type of floor.

The flooring material that is used in the largest quantity these days is the thermoplastic tile. It is popular because it is cheap and easy to lay. If it is laid properly and the choice of colour is right, it can be a very serviceable and attractive floor. The two main things to bear in mind are, first, the choice of colour. Very light, plain colours which look well in the little box of samples that the manufacturer sends to the office, show every foot-mark in a few weeks and are almost impossible to clean. Sheet floors like rubber, linoleum and pvc can also be laid in tile form.

Last on my list are the hard clay, quarry and tessellated tiles. These are generally used in places where a really tough floor is needed, but the problem of joints is not so serious—kitchens, lavatories and some forms of laboratories, etc. I have used them quite a lot in pharmaceutical factories where cleanliness is important and water is spilled a good deal, but in every case a damp-proof membrane has had to be laid, not so much to prevent damp rising as going down from the top.

*The Colonial Mutual Assurance Society Building, designed by Stephenson, Turner, Lightfoot, Twentyman-Jones and Kent, which was recently completed in Cape Town. The architects chose Williams & Williams' aluminium windows and Wallspan curtain walling for this building. The large composite windows extending from the fourth to the tenth floors were set in specially designed aluminium subframes and jointed with Neoprene gaskets to ensure a watertight fit and simplicity of assembly. All window fittings were manufactured in aluminium alloy and fitted with nylon bushes. Infill panels between the floors were of blue armour-clad glass. Wallspan and aluminium windows were supplied by Richards & Barlow (Pty.) Ltd., a South African associate of Williams & Williams Ltd., the Chester manufacturers*

# Rights of Light

## Legal Actions 'Complex and Costly'

'BECAUSE of the complexity and costliness of actions for the preservation of a right to light, far more cases are settled out of court than come up for hearing.' This was stated by MR. BRYAN W. ANSTEY, BSC, FRICS, a London chartered surveyor, in a paper entitled 'Rights of Light,' delivered to a meeting of the Royal Institution of Chartered Surveyors held in London on March 6.

'The result,' he went on, 'is that the law of light does not so frequently come to be tested in the courts as do some other matters, and the theory and practice of measurement of daylight is even more rarely discussed there in detail.

'To deal with ancient lights, a mixture of legal knowledge and of expertise is required,' he said. 'Neither the law nor the practice has reached finality. Though mainly based on the Prescription Act, 1832, as modified by the Rights of Light Act, 1959, the law is fundamentally case law.'

It was commonly believed by the general public, and even by some professional men, that if the top of an obstructing building subtended an angle of 45 degrees or less to the ground floor sill of a building which claimed ancient rights of light, then there would be no actionable injury. 'This "rule" has been expressly repudiated by the courts,' he said.

It was also futile to attempt to use a light-meter to ascertain the distribution of daylight in conditions of given obstruction.

### The 'Sky Factor'

In presenting technical evidence to support his case, the surveyor had to rely upon drawings and diagrams, and especially upon a particular sort of diagram prepared by the well-known chartered surveyor, the late Percy J. Waldram, in conjunction with his equally distinguished son.

'It is necessary to make an important distinction between daylight and light from the sky,' said Mr. Anstey. 'In Percy J. Waldram's day, the term "daylight factor" was used in respect of a physical state of affairs which is now more correctly described as "sky factor"; and the term "daylight factor" is reserved for that to which it more truly applies.'

Sky factors were preferred to daylight factors because the patch of sky available to illuminate any particular point on a plans of reference was capable of precise definition and measurement, whereas the daylight factor could be influenced quite markedly by the reflecting properties of the wallpaper, ceiling, furnishings or floor coverings in a room, as well as by the character of the external surface of nearby buildings.

'A man has only a legal easement to what is "sufficient according to ordinary notions,"' said the speaker. This had been held and upheld in the courts and, in a recent case, the Judge accepted what was in fact a 0.2 per cent sky factor contour as a sound guide to adequacy 'according to the ordinary notions of mankind.' A 0.2 per cent sky factor contour was a line joining points at which 0.2 per cent (or 1/500th) of the dome of the sky was available at the plane of reference for illumination, and it was with this contour that rights of light cases were principally concerned.

### Remedies

'If a client is advised that his right will be actionably injured, his proper course is to seek an injunction restraining the servient building owner from continuing his building so as to obstruct the light,' he said. 'That injunction, if granted, may either prevent the erection of the building, allow it subject to modifications, or require its demolition in whole or in part if it has already been erected. Nevertheless, it is in the discretion of the court to grant damages in lieu of an injunction'

Nowadays, the court inclines to damages rather than to an injunction, but there have been notable exceptions to this. However, most cases are settled out of court by a money payment, and it is with the evaluation of the injury in money terms that surveyors are often concerned. Such valuations are usually calculated with reference to the rental value of the particular property concerned.

# Institute of Landscape Architects

## Report on Recruitment, Training and Employment

THE EDUCATION COMMITTEE of the Institute of Landscape Architects, concerned with seeking information to guide future attempts to secure adequate training facilities for the profession, has conducted extensive inquiries during 1960 on the recruitment, training and employment of landscape architects. This information has now been published in the form of a report which may be obtained, price 3s., from the Institute, at 1 Park-crescent, London, W1.

It was found that while landscape work could not be described as lucrative, it was at least sufficiently remunerative for members to work and live. Four per cent of those who replied to a questionnaire received an income of between £750 and £1,250. Twenty-six per cent of the replies came from members who were employers with their own practice. Employees in private practice amounted to thirteen per cent whereas local planning authorities, and official, e.g., new town authorities, employed thirty per cent and twenty-four per cent respectively. It was obvious that public employment, particularly with local planning authorities, had assumed considerable importance.

Further inquiries in the questionnaire covered professional experience, training and qualifications, and teaching of landscape architecture. An attempt was made to plot trends in the recruitment, training and employment of landscape architects. It was generally agreed that employment of landscape architects was increasing and that public opinion and official policy showed a new interest in the existing landscape and a wish to enhance it so far as economic and other considerations made this possible. A slight drop was confirmed in future estimates of employment by new town development corporations, but county planning authorities gave very encouraging information.

It seemed that many employers, whilst not yet able to employ the 'pure' landscape architects, were anxious to have landscape skills available and required people dually qualified in architecture and town planning as well as landscape design.

Most members of the Institute of Landscape Architects qualify for associate membership by direct entry through the medium of the final examination. Syllabuses for this and the intermediate examination are comprehensive and standards appear to be high. New courses have been proposed at Birmingham, Cheltenham, Dundee and Edinburgh. It appears that most will be some form of extension of existing training in architecture or planning and not securely enough based to be regarded as separate schools or departments of landscape architecture, able to recruit students from the country as a whole or to provide comprehensive training to produce fully qualified landscape architects.

In framing new courses, states the report, it must be borne in mind that the role of the landscape architect should not be considered as a restricted one merely concerned with the detailed layout, design and planting of open spaces covered by other professions. Planting skill would be required and a highly developed sense of design. Techniques of consultation and contract supervision would also be important.

# British Plastics Federation

## *Election of Officers and Committee*

MR. H. H. WOOLVERIDGE, BSC, a director of the Distillers Co. Ltd., is the new president of the British Plastics Federation.

Honorary officers elected are: Chairman, D. Radford; vice-chairman, F. Walls; immediate past chairman, N. B. Punfield; honorary treasurer, R. P. Anderson.

Members of Council are: R. P. Anderson, G. S. Bache, S. R. Badley, D. H. Balfry, S. Baxter, H. V. Blake, H. D. Brett, N. Browne, L. R. Cornelius, G. V. Cox, E. A. Davis, K. R. Dodd, J. L. Fergus, A. Gundry, A. W. Hall, T. Harland, D. A. Harper, H. F. W. Head, A. A. Heath, S. Holmes, S. Hope, R. W. Lowe, E. A. O. Mange, D. G. Owen, B. S. Parkyn, J. A. Pentecost, A. W. Rawe, E. J. P. Reynolds, G. G. Ritchie, P. Russell, A. B. Scotson, P. Smith, C. R. Todd, J. S. Walker, M. B. Warbreck-Howell, E. J. Westnedge, H. White, R. H. Wilby, C. G. Wilde and A. W. Wilson.

Past chairmen—ex officio: P. A. Delafield, H. W. Graesser-Thomas, H. V. Potter, A. E. Skan and W. Chas. Waghorne. Co-opted: H. A. Collinson, C. S. Dingley, G. W. Hodds and A. Renfrew.

# Safety and the Technical Colleges

## Emphasis on Accident Prevention at all Levels of Teaching

SPEAKING at the eighty-first general meeting of the London Building and Engineering Contractors Accident Prevention Group on February 15 MR. E. J. ELMES, AIPHE, AIOB, head of the building trades department, Brixton School of Building, said that although the technical colleges were sincerely interested in safety, he would not claim them to be free from criticism in this respect. The approach in further education, he continued, was to include in the syllabus items which directed the students' attention to accident prevention and to encourage safe working at all times.

Apprentices, journeymen, junior administrators, supervisors at all levels, and executives—all received some instruction in safety, if only to avoid accidents themselves when visiting sites. The general foreman was, however, the key man as far as accident prevention was concerned and special attention was paid to him.

The City and Guilds of London Institute, the speaker continued, provided a valuable lead in the technical training for those engaged in the building industry. Through the consultative committee and advisory committees, a watchful eye was kept on the developments. These committees comprised representatives of industry, employers, operatives, educationists, specialists, and others who contributed to the preparation of syllabuses to meet the particular needs of industry. Examinations were set by experts in a particular field and considered by a moderating committee to ensure that the questions set were of the right standard. This method of control also ensured fairness to the individual and value to the industry.

The City and Guilds now offered a craft course, an advanced craft course, a full technological certificate course, and subsequently a certificate course in general foremanship studies. Attention to accident prevention was traditional in the syllabuses for all these courses, but with the ever increasing complexity of building sites the subject now received greater emphasis than before. Technical colleges thus gave instruction in safe working throughout all stages of building education from the apprentices' initial study to general foremanship studies and beyond.

The approach, Mr. Elmes continued, was not merely to learn the regulations parrot fashion, nor mainly as a workshop subject—accidents in technical workshops were comparatively rare. The principal aim was to teach how and why a job should be done in a particular way —safety was taught by implication when dealing with the method of construction, i.e. methods described were analysed from the point of view of safety as well as from other angles. An apprentice if asked 'Have you been taught safety at your school course?' would probably answer 'No!' Later on, however, if asked why he had been told to do things in a certain way, he would reply 'Because it would be unsafe otherwise.'

Similarly in higher courses, safety was in the syllabus, but here the instruction was often more direct. The aim was not to get the foreman, for example, to conform to regulations, but to keep his site safe for his workpeople. Discussion was an essential part of learning, particularly in the instruction of accident prevention.

# Waterproofing Agents for Exposed Timber

## *A TDA Research Report*

IN RECENT YEARS the Timber Development Association has devoted close attention to the problem of colour change and weathering in timber exposed to the elements. Research has been concerned both with the behaviour of wood itself and with a large range of protective treatments applied to it. Much of the information published to date centres on the use of varnishes and other clear finishes, but in a new TDA Research Report (C/RR/6) 'Timber Waterproofing Agents,' V. R. Gray, MA, PhD, and Marian E. Wheeler give an account of recent work designed to assess the effectiveness of less expensive finishes of the water repellant type.

Waterproofing agents of this kind do not prevent for long the washing out of colouring materials from the wood by rain, nor do they influence the absorption and loss of water vapour from the wood. However, they do render water penetration more difficult and enable the wood to shed water more readily, much in the way that proofing agents protect textiles and building materials.

The experiments described in the report were concerned with the performance of twelve waterproofing treatments, among them a number of proprietary solutions. All of the finishes were applied to samples of western red cedar, a timber which is widely used for exposed woodwork. The effectiveness of the treatments was determined by measuring the wetting angle of water on the cedar samples treated with the repellants both before and after exposure to the weather for one year.

The result of this investigation shows that various wax compositions give the most durable water repellant treatments for timber. Varnish-like 'seals,' linseed oil and silicone resin do not withstand a year's exposure, although a proprietary mixture of linseed oil and wax provides fairly good results. The authors point out that water repellants attract dirt from the atmosphere and that darkening of the wood appears to be greater in treated than untreated material. They conclude that where darkening of the wood is an objection it is perhaps best to combine water repellant treatment with a pigment such as that found in preservative stains, though then some darkening may occur.

Copies of the report may be obtained, price 3s. 6d., from the Timber Development Association, 21 College-hill, London, EC4.

# Colloquium on Concrete Surface Finishings

## *Free Discussions by Leading Authorities*

A COLLOQUIUM on concrete surface finishings is to be held at the Research Station of the Cement and Concrete Association, Wexham Springs, Stoke Poges, near Slough, Buckinghamshire, from April 24 to 27. The colloquium has been planned by a small CIB working group composed of representatives of the DSIR Building Research Station and the Cement and Concrete Association in the United Kingdom, and Ratiobouw in the Netherlands. An address of welcome will be given by the Hon. Leo Russell, Director-General of the C and CA.

Papers, which are being circulated to those attending, will not be presented formally, the working sessions will instead take the form of free discussions introduced by a reporter. Subjects for discussion will include: finishes obtained direct from the formwork; finishes obtained by the use of special formwork linings; exposed aggregate finishes obtained by (a) brushing, (b) the use of retarders, (c) the aggregate transfer method, (d) tooling, (e) sand or shot blasting, (f) grinding, (g) any other method; the use of slabs as permanent formwork; and problems arising in the use of concrete facing slabs. The working languages will be English and French.

Participation in the colloquium is by personal invitation only and will in any case be limited to 35. It is expected that many leading authorities in this field will attend, and it is hoped that the occasion will provide a valuable opportunity for an international exchange of ideas. It will probably also make clear which aspects of the subjects outlined in the provisional programme could be proposed for further co-operative study within the general framework of CIB.

Persons wishing to participate should contact without delay Dr. Ralph P. Andrew at the C and CA, 52 Grosvenor-gardens, London, SW1. There will be a charge of £5 for accommodation.

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**Replanning Central Ramsgate**

RAMSGATE TOWN COUNCIL has accepted a recommendation by its Development Proposals and Town Map Committee to 'explore' the question of engaging a planning consultant to prepare a comprehensive development scheme involving the whole of the town centre.

# THE BUILDER CURRENT PRICES

THE information given on these pages has been specially compiled for *The Builder* and is copyright. It is the intention that the details given should indicate fair average prices of materials, not necessarily the highest or the lowest. The prices apply to large quantities of materials loaded at works, delivered at London Stations or at site in London Area as stated. Prices for smaller quantities ex merchant's warehouse will necessarily be higher so as to include the stocking and handling costs involved. It is recommended that the prices of materials should be confirmed by inquiry from suppliers and merchants.

## AGGREGATES AND SAND

Delivered site in full lorry loads. Average of prices for Boroughs of Westminster, Paddington, Holborn and St. Pancras.

| | | £ | s. | d. |
|---|---|---|---|---|
| Pit Ballast | per yd. | 1 | 5 | 5 |
| Pit Sand | " | 1 | 3 | 8 |
| Washed Sand | " | 1 | 6 | 9 |
| ¾ in. Shingle | " | 1 | 4 | 3 |
| ¾ in. Broken Brick | " | 1 | 0 | 9 |
| Pan Breeze | " | 1 | 1 | 6 |
| Fine or Coarse Foamed Slag Aggregate (2 yds. of fine and 2.6 yds. of coarse per ton. | per ton | 3 | 8 | 0 |

## CEMENT, etc.

Including non-returnable jute sacks or paper bags.

| | | £ | s. | d. |
|---|---|---|---|---|
| Best British Portland Cement. Standard Specification delivered Charing Cross area. 6-ton loads and upwards, site | per ton | 5 | 12 | 0 |
| 1 to 6 tons, site | " | 6 | 4 | 0 |
| Rapid-Hardening Cement in 6-ton loads and upwards to site | " | 6 | 2 | 6 |
| 1 to 6 tons do. site | " | 6 | 14 | 6 |
| Aquacrete Water Repellent Cement. 32s. 6d. per ton on ordinary cement prices. | | | | |
| Sulphate Resisting Cement. 32s. 6d. per ton on ordinary cement prices. | | | | |
| Red, Buff or Khaki Colorcrete in 6-ton lots | " | 8 | 12 | 0 |
| Other colours according to colour. In 4-ton lots from 310s. 0d. to 708s. 0d. per ton. | | | | |
| White Portland Cement | " | 13 | 17 | 6 |
| Under 1 ton | per cwt. | | 16 | 11 |
| 417 Cement (Ultra Rapid Hardening) in 6-ton lots and upwards | per ton | 7 | 4 | 6 |
| Super Cement (Waterproof), 32s. 6d. per ton above Portland Cement. | | | | |
| Cullamix Tyrolean Finish, £11 10s.0d. to £14 5s.0d. (1-ton loads and upwards). | | | | |
| Ciment Fondu and Lightning Brands High Aluminous cement, 6-ton lots and up | " | 15 | 14 | 6 |
| Stourbridge Fireclay, 6-ton loads at Railway Depot, London | " | 6 | 19 | 0 |
| Stourbridge Fireclay, 6-ton loads (London sites) | " | 7 | 7 | 0 |
| Moler Mortar Powder for Flue Bricks (London sites) | per cwt. | 1 | 6 | 0 |

## BRICKS

| Full Loads | | £ | s. | d. |
|---|---|---|---|---|
| First Hard Stocks | per 1,000 | 16 | 19 | 6 |
| Second Hard Stocks | " | 14 | 18 | 6 |
| Mild Stocks (Kiln Burnt) | " | 11 | 5 | 0 |
| Mild Stocks | " | 11 | 0 | 0 |
| All loaded free into lorry at the works. The question of haulage is still very difficult and prices must be obtained from job to job. | | | | |
| 2½ in. Nominal Fletton Bricks to sites in W.C. district : | | | | |
| Commons | " | 6 | 12 | 0 |
| Cellular Commons | " | 6 | 12 | 0 |
| Keyed do. | " | 6 | 14 | 0 |
| Rustics | " | 8 | 12 | 0 |
| Cellular Rustics | " | 8 | 12 | 0 |
| Single Bullnose Commons | " | 8 | 14 | 6 |
| Sandfaced | " | 9 | 12 | 0 |
| Tuscans | " | 10 | 7 | 0 |
| Saxons | " | 10 | 15 | 0 |
| Golden Buffs | " | 11 | 2 | 0 |
| Dapple Light Facings | " | 11 | 9 | 6 |
| Heather Facings | " | 11 | 5 | 0 |
| Best Blue Pressed Staffs (London sites) | " | 33 | 4 | 9 |
| do. Bullnose (London sites) | " | 34 | 3 | 9 |
| Blue Wire Cuts (London sites) | " | 29 | 9 | 6 |
| Midhurst Lime Bricks (London sites) | " | 11 | 13 | 0 |
| Uxbridge Whites (London sites) | " | 11 | 8 | 6 |
| Special Purpose Sandlime Bricks (London sites) | " | 8 | 12 | 0 |
| Best Stourbridge Fire Bricks : | | | | |
| 2½ in. (London stations) | " | 30 | 12 | 3 |
| 2½ in. (London sites) | " | 31 | 1 | 0 |
| 3 in. (London stations) | per 1,000 | 36 | 14 | 9 |
| 3 in. (London sites) | " | 37 | 5 | 3 |
| 2½ in. Moler Flue Bricks (London sites) | " | 31 | 0 | 0 |
| 2½ in. Machine-made Sandfaced Red Facings (London sites) | " | 18 | 16 | 6 |
| 2½ in. Machine-made Multi Red Facings (London sites) | " | 19 | 1 | 6 |
| 2½ in. Hand-made Sandfaced Red Facings (London sites) | " | 20 | 7 | 6 |
| 2½ in. Hand-made Sandfaced Multi-Colour Facings (London sites) | " | 20 | 7 | 6 |
| Hand-made Sandfaced Cherry Red Facings, Berkshire district (London sites) | " | 21 | 5 | 0 |
| Hand-made Sandfaced Multi-Colour Facings, Berkshire district (London sites) | " | 21 | 5 | 0 |
| Rubber Bricks for gauged arches (London sites) | " | 52 | 5 | 0 |
| 2½ in. Surrey Clamp Burnt Multi Stock Facings (London sites) | " | 16 | 15 | 0 |
| 2½ in. Surrey Kiln Burnt Multi Stock Facings (London sites) | " | 17 | 7 | 0 |
| Glazed Bricks (London sites), White, Ivory, Brown: | | | | |
| Stretchers | " | 64 | 0 | 0 |
| Headers | " | 63 | 0 | 0 |
| Quoins, Bullnose and 4½ in. Flats | " | 80 | 0 | 0 |
| Double Stretchers | " | 85 | 0 | 0 |
| Double Headers | " | 77 | 10 | 0 |
| One side and two ends | " | 87 | 0 | 0 |
| Two sides and one end | " | 89 | 10 | 0 |
| Splays and Squints | " | 83 | 0 | 0 |
| Cream and Buff, £3 extra over White. Other colours, hard glaze, £8 10s. 0d. extra over White. All above prices plus 47½% for Best quality and plus 47½% less 10% for Second quality. | | | | |

## PARTITION SLABS, etc.

Delivered Central London Area. (W.C. District).

| Minimum lorry loads | | £ | s. | d. |
|---|---|---|---|---|
| HOLLOW CLAY PARTITION BLOCKS (Keyed) | | | | |
| *2½ in. 140 yds. | per yd. sup. | | 4 | 7 |
| BUILDING BLOCKS (Keyed) | | | | |
| *3 in. (6 cavity) 110 yds. | " | | 5 | 9 |
| *4 in. (6 cavity) 90 yds. | " | | 7 | 3 |
| 6 in. (8½ in. × 5⅝ in.) 1,250 blocks | per 1,000 | 28 | 9 | 0 |
| * Half blocks at no extra charge. | | | | |
| CLINKER CONCRETE | | | | |
| 2 in. 100 yds. | per yd. sup. | | 3 | 11 |
| 2½ in. 85 yds. | " | | 4 | 6 |
| 3 in. 75 yds. | " | | 5 | 6 |
| 4 in. 55 yds. | " | | 6 | 11 |
| CRANHAM TERRA COTTA | | | | |
| 2 in. | " | | 7 | 5 |
| 2½ in. | " | | 8 | 4 |
| 3 in. Load bearing quality | " | | 9 | 6 |
| 4 in. do. do | " | | 11 | 6 |
| MOLER PARTITION BLOCKS | | | | |
| 2 in. 150 yds. | " | | 12 | 9 |
| 2½ in. 120 yds. | " | | 13 | 9 |
| 3 in. 100 yds. | " | | 14 | 9 |
| 4 in. 90 yds. | " | | 17 | 0 |
| LIGHTWEIGHT CONCRETE BUILDING AND PARTITION BLOCKS OF VARIOUS SOURCES OF MANUFACTURE | | | | |
| 2 in. 100 yds. | per yd. sup. | | 5 | 4 |
| 2½ in. 80 yds. | " | | 6 | 5 |
| 3 in. 65 yds. | " | | 7 | 5 |
| 4 in. 50 yds. | " | | 9 | 4 |
| 4½ in. 44 yds. | " | | 10 | 2 |
| 6 in. 33 yds. | " | | 14 | 5 |
| THERMALITE-YTONG PARTITION BLOCKS | | | | |
| 2½ in. 144 yds. | " | | 7 | 0 |
| THERMALITE-YTONG LOAD-BEARING INSULATING BLOCKS | | | | |
| 3 in. 120 yds. | per yd. sup. | | 8 | 5 |
| 4 in. 90 yds. | " | | 11 | 0 |
| 5 in. 72 yds. | " | | 13 | 9 |
| 6 in. 60 yds. | " | | 16 | 6 |
| 8½ in. 42 yds. | " | 1 | 3 | 8 |
| FLOOR BLOCKS AND FILLER TILES | | | | |
| Floor Blocks 12 in. × 12 in. delivered in full lorry-loads : | | | | |
| 3 in. | per 1,000 | 35 | 14 | 0 |
| 4 in. | " | 38 | 9 | 0 |
| 5 in. | " | 46 | 1 | 0 |
| 6 in. | " | 52 | 12 | 0 |
| 7 in. | " | 64 | 12 | 0 |
| 8 in. | " | 75 | 9 | 0 |
| 9 in. | " | 83 | 2 | 0 |
| 10 in. | " | 92 | 0 | 0 |
| Filler Tiles in multiples of 10 tiles per 1,000 multiples : | | | | |
| 12 in. × 3 in. × ⅝ in. | " | 43 | 13 | 0 |
| 12 in. × 4 in. × ⅝ in. | " | 75 | 7 | 0 |
| 10 in. × 5 in. × ⅝ in. | " | 75 | 7 | 0 |

## STONEWARE DRAIN PIPES, etc.

Glazed Stoneware Standard List (November, 1956).

| | | 4 in. | 6 in. | 9 in. |
|---|---|---|---|---|
| Pipes, 2 ft. lengths | per ft. | 1/8 | 2/6 | 4/6 |
| Bends | each | 5/– | 7/6 | 20/3 |
| Junctions | „ | 8/4 | 12/6 | 27/– |
| Gullies with 4 in. outlets | „ | 12/6 | 13/9 | 22/6 |

The following are the percentages to be added to the Standard List (November, 1956) prices delivered London Area.
Delivered ex Merchants Wharf or Depot.

| | Over 2 tons | Over 100 pieces Under 2 tons | Under 100 pieces Under 2 tons |
|---|---|---|---|
| Best Quality | – 5% | +15% | +20% |
| BSS Best Quality | +10 % – 5% | +10 %+15% | +10 %+ 20 % |
| Tested Quality | +37½% – 5% | +37½%+15% | +37½%+ 20 % |
| BSS Tested Quality | +47½% – 5% | +47½%+15% | +47½%+ 20 % |

| | | £ | s. | d. |
|---|---|---|---|---|
| 3 in. Land Drain Pipes (in 12 in. lengths) | per 1,000 | 12 | 10 | 6 |
| 4 in. do. do. | „ | 16 | 16 | 0 |
| 6 in. do. do. | „ | 34 | 10 | 0 |
| 9 in. do. do. | „ | 64 | 19 | 0 |

## DAMP COURSE

| | | £ | s. | d. |
|---|---|---|---|---|
| Hessian base bitumen 7 lb. per yd. sup. in 24 ft. rolls cut to wall widths in lots of £6 value and over delivered London area | per yd. sup. | | 3 | 5 |
| Asbestos base do. 7 lb. per yd. sup. | do. do. „ | | 5 | 2 |
| Lead lined bitumen do. 9½ lb. per yd. sup. | do. do. „ | | 12 | 2 |
| 18 in. × 9 in. British damp course slates | per 1,000 | 43 | 8 | 11 |
| 14 in. × 9 in. do. do. | „ | 32 | 8 | 2 |
| 9 in. × 9 in. do. do. | „ | 18 | 18 | 9 |
| 18 in. × 4½ in. do. do. | „ | 19 | 19 | 9 |
| 14 in. × 4½ in. do. do. | „ | 15 | 18 | 3 |
| 9 in. × 4½ in. do. do. | „ | 10 | 14 | 3 |

## STONE

| | | £ | s. | d. |
|---|---|---|---|---|
| Bath Stone | | | | |
| Monks Park | per ft. cube | | 10 | 3 |
| St. Aldhelm Box Ground | „ | | 11 | 6 |
| Delivered in railway trucks at South Lambeth B.R. Western Region. | | | | |
| Doulting Stone Random Blocks. Delivered London area | „ | | 10 | 10 |
| Beer Stone. Delivered London area | „ | | 10 | 6 |
| Portland Stone— | | | | |
| Brown Whitbed in random blocks, 20 ft. average delivered in railway trucks at Nine Elms, B.R. Southern Region | „ | | 9 | 10 |
| Yorkshire Stone—Blue Robin Hood Quality. Delivered to site London in 6-ton lots. | | | | |
| 9 in. × 3 in. Rubbed, weathered, throated and stolled cills | per ft. cube | 4 | 5 | 10 |
| 2 in. × 6 in. do. do. do. | „ | 3 | 1 | 2 |
| 12 in. × 3 in. Plain coping, twice throated | „ | 2 | 7 | 6 |
| 2 in × 3 in. Weathered and twice throated coping | „ | 3 | 3 | 3 |
| 4 in. × 6 in. do. do. do. | „ | 2 | 17 | 0 |
| 4½ in. × 9 in. Plinth rubbed on top and face | „ | 2 | 11 | 0 |
| 3 in. sawn two sides Slabs, random sizes | per ft. sup. | | 9 | 1 |
| emplates and Cover Stones, 3 in., 4 in. and 6 in. thick, edges coped for rendered brickwork | per ft. cube | 1 | 11 | 3 |
| do. do. fair one edge for fair faced brickwork | „ | 1 | 17 | 0 |
| Hard York— | | | | |
| 12 in. × 2 in. Square Steps, rubbed on top and edge | per ft. run | | 11 | 0 |
| 14 in. × 3 in. Round-nosed Steps, rubbed on top and front | per ft. cube | 2 | 18 | 3 |
| 12 in. × 6 in. Plain Steps, rubbed top and front | „ | 2 | 11 | 0 |
| 2 in. Rubbed and Jointed Paving, given sizes | per ft. sup. | | 10 | 3 |
| 2 in. Sawn Paving, edges squared, in random sizes | per yd. sup. | 3 | 12 | 0 |

## TILES AND PANTILES

Delivered London area by road in 6 tons or over per 1,000.

| | £ | s. | d. |
|---|---|---|---|
| Machine-made Pantiles and French pattern Tiles from Lincolnshire district | 35 | 16 | 6 |
| Hand-made Pantiles Berkshire district | 64 | 10 | 0 |
| Hand-made Double Roman Bridgwater district | 78 | 2 | 9 |
| Hand-made 10½ × 6½ tiles Berkshire district | 18 | 0 | 0 |
| Machine-made 10½ × 6½ Staffordshire district | 17 | 0 | 0 |
| Hand-made Hip and Valley tiles per doz. | 1 | 13 | 0 |
| Machine-made Hip and Valley tiles do. | 1 | 12 | 0 |
| Concrete tiles 10½ × 6½ | 8 | 10 | 0 |
| do. Interlocking (49S) | 19 | 16 | 6 |

NOTE.—Breakage in transit, purchasers' responsibility.

## SLATES

First-quality Slates from Penrhyn or Portmadoc, carriage paid in full truck loads to London Rate station. Per 1,000 actual.

| | £ | s. | d. |
|---|---|---|---|
| 24 × 12 | 155 | 10 | 0 |
| 22 × 12 | 123 | 10 | 0 |
| 22 × 11 | 111 | 10 | 0 |
| 20 × 12 | 104 | 10 | 0 |
| 20 × 10 | 102 | 0 | 0 |
| 18 × 10 | 69 | 10 | 0 |
| 18 × 9 | 61 | 0 | 0 |
| 16 × 10 | 54 | 8 | 10 |
| 16 × 8 | 42 | 12 | 4 |

NOTE.—Breakage in transit, purchasers' responsibility.

## TIMBER

| | | | £ | s. | d. |
|---|---|---|---|---|---|
| Softwood | Ex Wharf | per standard | £115 to £140 | | |
| Joinery quality | do. | „ | £94 — £98 | | |
| Carcassing quality | do. | „ | £110 | 0 | 0 |
| 1 in. Tongued and Grooved Flooring | do. | „ | | | |
| Hardwood | | | £ | s. | d. |
| Mahogany—African S.E. | do. | per ft. cube | 1 | 10 | 0 |
| do. Honduras S.E. | do. | „ | 3 | 5 | 0 |
| Oak European S.E. | do. | „ | 2 | 10 | 0 |
| do. Japanese S.E. | do. | „ | 3 | 0 | 0 |
| do. English Logs sawn | do. | „ | 2 | 0 | 0 |
| Teak 8 in. average S.E. | do. | „ | 3 | 17 | 6 |
| Walnut African Logs sawn | do. | „ | 1 | 2 | 6 |
| Plywood | | per | | | |
| 6 mm. (¼ in.) Birch Plywood B/BB | | 100 sq. ft. | 4 | 4 | 6 |
| 6 mm. Israeli Gaboon do. B/BB exterior grade WBP (AX100) | | „ | 4 | 5 | 3 |
| 18 mm. Birch Blockboard | | „ | 9 | 10 | 0 |
| ¾ in. Douglas Fir Plywood 96 in. × 48 in. Exterior grade WPB (AX100) solid two sides | | „ | 9 | 11 | 0 |

## DOORS (in Lots I-II)

| | £ | s. | d. |
|---|---|---|---|
| Delivered London area. | | | |
| 1¼ in. 4 Horizontal Panel. Pattern 4 in. deal | | | |
| 2 ft. 0 in. × 6 ft. 6 in. | each | 1 | 16 | 0 |
| 2 ft. 3 in. × 6 ft. 6 in. | „ | 1 | 17 | 6 |
| 2 ft. 6 in. × 6 ft. 6 in. | „ | 1 | 18 | 6 |
| 2 ft. 9 in. × 6 ft. 6 in. | „ | 2 | 0 | 6 |
| 2 in. do. but top panel open. Pattern 4 × G in deal | | | | |
| 2 ft. 6 in. × 6 ft. 6 in. | „ | 2 | 9 | 0 |
| 2 ft. 9 in. × 6 ft. 6 in. | „ | 2 | 11 | 6 |
| 2 in. 2 Panel top panel open. Pattern 2 × G in deal | | | | |
| 2 ft. 6 in. × 6 ft. 6 in. | „ | 2 | 3 | 0 |
| 2 ft. 9 in. × 6 ft. 6 in. | „ | 2 | 5 | 0 |
| 1¼ in. Plywood Faced Flush Doors to BS459, Part 2A | | | | |
| 2 ft. 0 in. × 6 ft. 0 in. | „ | 1 | 12 | 3 |
| 2 ft. 0 in. × 6 ft. 6 in. | „ | 1 | 12 | 3 |
| 2 ft. 3 in. × 6 ft. 6 in. | „ | 1 | 13 | 9 |
| 2 ft. 6 in. × 6 ft. 6 in. | „ | 1 | 15 | 3 |
| 2 ft. 9 in. × 6 ft. 6 in. | „ | 1 | 18 | 0 |
| 1¼ in. Hardboard Faced Flush Doors | | | | |
| 2 ft. 0 in. × 6 ft. 0 in. | „ | 1 | 5 | 6 |
| 2 ft. 0 in. × 6 ft. 6 in. | „ | 1 | 6 | 0 |
| 2 ft. 3 in. × 6 ft. 6 in. | „ | 1 | 6 | 6 |
| 2 ft. 6 in. × 6 ft. 6 in. | „ | 1 | 8 | 6 |
| 2 ft. 9 in. × 6 ft. 6 in. | „ | 1 | 9 | 6 |

## SUNDRIES

| | | £ | s. | d. |
|---|---|---|---|---|
| Delivered London area. | | | | |
| 1 in. Wood Wool Slabs 6 ft. 0 in. × 2 ft. 0 in. in quantities of 1 ton (89 yds. to 1 ton) | per yd. | | 6 | 2 |
| 1½ in. do. (67 yds. to 1 ton) | „ | | 8 | 0 |
| 2 in. do. (52 yds. to 1 ton) | „ | | 9 | 9½ |
| 2½ in. do. (45 yds. to 1 ton) | „ | | 11 | 3 |
| 3 in. do. (39 yds. to 1 ton) | „ | | 12 | 7½ |
| Quantities under 1 ton add 1d. per ½ in. of thickness | | | | |
| ½ in. imported or home produced insulation Board, quantities over 5,000 sq. ft. | per 100 sq. ft. | 2 | 2 | 6 |
| ⅛ in. Hardboard do. | „ | 1 | 17 | 6 |
| ¼ in. do. do. | „ | 2 | 4 | 6 |
| 2 in. Compressed Straw Slabs, roofing quality. 6 ft., 8 ft., 9 ft., 10 ft., and 12 ft. × 4 ft. | | | | |
| 50–100 yds. | per yd. sup. | | 11 | 4 |
| 101–250 yds. | „ | | 10 | 10 |
| 251–750 yds. | „ | | 10 | 1 |
| Over 750 yds. | „ | | 9 | 4 |
| 2 in. do. for partitions 4d. per yd. cheaper. | | | | |
| 1/16 in. Asbestos Flat Building Sheets | „ | | 4 | 3½ |
| ⅛ in. do. do. do. | „ | | 6 | 0 |
| Roofing Felt 1-ply | „ | | 1 | 9 |
| do. 2-ply | „ | | 2 | 2½ |
| Best Scotch Glue in slabs | per ½ cwt. | 5 | 8 | 0 |
| do. pearl | „ | 5 | 8 | 0 |
| Croid Glue | 28 lb. | 2 | 6 | 0 |
| Impact Adhesive | per gall. | 2 | 12 | 0 |
| Cut Nails 3 in. (1-ton lots) | per ton | 81 | 10 | 0 |
| do. 4 in. and up (1-ton lots) | „ | 78 | 0 | 0 |
| Wire Nails 3 in. (4-cwt. lots) | per cwt. | 3 | 19 | 2 |
| do. 4 in. and up (4-cwt. lots) | „ | 3 | 16 | 6 |

## METALS

STEEL JOISTS, ETC.

| | | £ | s. | d. |
|---|---|---|---|---|
| Basis Joists— | | | | |
| 6 in. × 5 in., 8 in. × 5 in., 8 in. × 6 in., 10 in. × 6 in. 12 in. × 6 in., plain cut to lengths delivered London area | per ton | 47 | 15 | 0 |
| Extra for sizes | | | | |
| 3 in. × 1½ in. 4 in. × 1½ in. | „ | | 3 | 10 | 0 |
| 3 in. × 3 in. | „ | | 2 | 10 | 0 |
| 4 in. × 3 in. | „ | | 2 | 5 | 0 |
| 10 in. × 4½ in. | „ | | 1 | 10 | 0 |
| 5 in. × 2½ in. 5 in. × 3 in. | „ | | 1 | 15 | 0 |
| 4½ in. × 1½ in. | „ | | 3 | 5 | 0 |
| 5 in. × 4½ in. 7 in. × 3½ in. 13 in. × 5 in. | „ | | | 15 | 0 |
| 6 in. × 3 in. 24 in. × 7½ in. | „ | | 2 | 0 | 0 |
| 6 in. × 4½ in. 7 in. × 4 in. 8 in. × 4 in. | „ | | 1 | 5 | 0 |
| 9 in. × 4 in. 10 in. × 5 in. | | | | | |
| 12 in. × 5 in. 22 in. × 7 in. | „ | | 1 | 0 | 0 |

## METALS—*continued*

| | | £ s. d. |
|---|---|---|
| 9 in. × 7 in. 10 in. × 8 in. 12 in. × 8 in. / 14 in. × 5½ in. 14 in. × 6 in. 14 in. × 8 in. / 15 in. × 5 in. 15 in. × 6 in. 16 in. × 6 in. / 16 in. × 8 in. 18 in. × 6 in. 18 in. × 8 in. | per ton | 10 0 |
| 18 in. × 8 in. 20 in. × 6½ in. 20 in. × 7½ in. | ,, | 10 0 |
| Steel angles average price ... ... ... ... | ,, | 48 15 0 |
| Steel tees average price ... ... ... ... | ,, | 49 15 0 |
| Fabricated work delivered London— | | |
| R.S. Joists cut and fitted... ... ... ... ... | ,, | 67 19 0 |
| Compound girders... ... ... ... ... ... | ,, | 72 14 3 |
| Stanchions ... ... ... ... ... ... ... | ,, | 78 9 9 |
| Compound stanchions ... ... ... ... ... | ,, | 83 4 3 |
| In Roof Work—Trusses and Purlins ... ... | ,, | 93 19 6 |
| Average prices not for awkward work. | | |
| Angle cleats and ⅛ in., ¼ in. and ⅜ in. bolts average price London area ... ... ... ... ... | per cwt. | 5 10 0 |

### Ferro-Concrete Bars and Fabric

| | | |
|---|---|---|
| Mild Steel Ferro-Concrete Bars British manufacture to BSS 785 ex. Mills. 1 in. diameter and upwards delivered nearest London station ... | per ton | 40 10 0 |
| do. do. ex. London Stock do. delivered London site ... ... ... ... ... | ,, | 49 10 0 |
| Extras— | | |
| ¼ in. diam.... ... ... ... ... ... ... | per ton extra | 8 12 6 |
| ⅜ in. do. ... ... ... ... ... ... ... | ,, | 6 12 6 |
| ½ in. do. ... ... ... ... ... ... ... | ,, | 4 12 6 |
| ⅝ in. do. ... ... ... ... ... ... ... | ,, | 3 2 6 |
| ¾ in. do. ... ... ... ... ... ... ... | ,, | 1 10 0 |
| ⅞ in. and 1 in. diam. ... ... ... ... ... | ,, | 15 0 |
| Steel wire mesh reinforcing fabric to BSS 1221A. | | |
| Ref. No. 106 ... ... 7.88 lbs. ... ... | per sq. yd. | 5 2 |
| ,, ,, 109 ... ... 4.71 ,, ... ... | ,, | 3 0½ |
| ,, ,, 113 ... ... 1.83 ,, ... ... | ,, | 1 8½ |
| ,, ,, 122 ... ... 7.32 ,, ... ... | ,, | 4 10½ |
| ,, ,, 125 ... ... 4.32 ,, ... ... | ,, | 2 10½ |

### Mild Steel Tubes

Tubes to BSS 1387. Fittings BSS 1740.

Basic List Prices

| | | ¼ in. | ⅜ in. | ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|---|---|---|---|
| Tubes ... ... | per ft. | 9¼ | 10 | 1/– | 1/2½ | 1/9 | 2/3 | 2/8 | 2/9 |
| Bends ... ... | each | 1/7 | 1/9 | 2/– | 2/6 | 3/8 | 5/5 | 6/2 | 10/7 |
| Elbows, square | ,, | 1/8 | 1/10 | 2/2 | 2/6 | 3/– | 4/4 | 5/2 | 8/6 |
| do. round | ,, | 1/10 | 2/– | 2/4 | 2/10 | 3/4 | 4/8 | 5/8 | 9/4 |
| Tees ... ... | ,, | 2/– | 2/2 | 2/6 | 3/2 | 3/8 | 5/– | 6/2 | 10/2 |
| Crosses... ... | ,, | 4/4 | 4/8 | 5/6 | 6/6 | 8/2 | 11/– | 13/2 | 21/– |
| Sockets, Plain | ,, | 6 | 6 | 8 | 10 | 1/– | 1/4 | 1/9 | 2/6 |
| do. Diminished | ,, | 8 | 10 | 1/– | 1/2 | 1/6 | 2/– | 2/8 | 4/– |
| Backnuts ... | ,, | 4 | 4 | 6 | 7 | 10 | 1/– | 1/4 | 2/2 |

### Malleable Fittings

| | | ¼ in. | ⅜ in. | ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|---|---|---|---|
| Elbows, round | each | 8½ | 8½ | 9¼ | 1/2½ | 1/8½ | 2/7½ | 3/6 | 5/– |
| Tees ... ... | ,, | 9½ | 9½ | 1/– | 1/4¾ | 2/– | 2/9½ | 4/– | 5/6 |
| Crosses... ... | ,, | 1/2½ | 1/2½ | 1/4¾ | 2/– | 2/9½ | 3/7½ | 5/2½ | 7/2½ |
| Sockets... ... | ,, | 5¾ | 5¾ | 7 | 9½ | 1/– | 1/7½ | 2/2½ | 3/1½ |
| Backnuts ... | ,, | 3 | 3 | 3½ | 4½ | 5½ | 7½ | 10½ | 1/5½ |

Discounts from List prices as follows :—

| Galvanised Tube— | Under 1 ton | Over 1 ton | W.I. Fittings | Malleable Fittings |
|---|---|---|---|---|
| Light | −38½% | −40 % | Light −25½% | Malleable List |
| Medium | −34½% | −36 % | Heavy −21½% | −14% + 40% |
| Heavy | −26½% | −28½% | | |
| Black— | | | | |
| Light | −49 % | −50½% | Light −31½% | Malleable List |
| Medium | −45 % | −46½% | Heavy −27½% | −14% |
| Heavy | −37½% | −39 % | | |

### C.I. Half-Round Gutters

Delivered London per yd. in 6 ft. lengths.

| | Gutters | Nozzles | Stop Ends |
|---|---|---|---|
| 3 in. ... ... ... ... ... ... | 4/2½ | 3/9 | 1/1 |
| 3½ in. ... ... ... ... ... ... | 4/7 | 4/1 | 1/1 |
| 4 in. ... ... ... ... ... ... | 5/11 | 4/7 | 1/7 |
| 4½ in. ... ... ... ... ... ... | 6/6 | 5/1 | 1/11 |
| 5 in. ... ... ... ... ... ... | 7/3 | 5/6 | 2/3 |

### C.I.O.G. Gutters

| Per yd. in 6-ft. lengths : | Gutters | Nozzles | Stop Ends |
|---|---|---|---|
| 3 in. ... ... ... ... ... ... | 5/5 | 4/11 | 1/3 |
| 3½ in. ... ... ... ... ... ... | 6/–½ | 4/11 | 1/7 |
| 4 in. ... ... ... ... ... ... | 6/8½ | 5/1 | 1/11 |
| 4½ in. ... ... ... ... ... ... | 7/3 | 5/10 | 2/3 |
| 5 in. ... ... ... ... ... ... | 7/11 | 6/8 | 2/7 |

### C.I. Rain-Water Pipes

| | Pipes | Bends | Branches |
|---|---|---|---|
| 2 in. ... ... ... ... ... ... | 8/11½ | 4/7 | 6/7 |
| 2½ in. ... ... ... ... ... ... | 8/11½ | 5/1 | 8/10 |
| 3 in. ... ... ... ... ... ... | 10/1 | 6/5 | 9/7 |
| 3½ in. ... ... ... ... ... ... | 11/6 | 7/7 | 11/6 |
| 4 in. ... ... ... ... ... ... | 13/3½ | 9/2 | 13/7 |

### L.C.C. Coated Soil Pipes

| | | | |
|---|---|---|---|
| 2 in. ... ... ... ... ... ... | 10/2½ | 7/10 | 9/7 |
| 2½ in. ... ... ... ... ... ... | 10/9 | 8/9 | 11/11 |
| 3 in. ... ... ... ... ... ... | 12/1 | 9/7 | 14/2 |
| 3½ in. ... ... ... ... ... ... | 13/6 | 11/11 | 16/6 |
| 4 in. ... ... ... ... ... ... | 15/4½ | 13/4 | 19/5 |

Above prices for gutters, rain-water and soil pipes for under 5-cwt. lots only. Lots over 5 cwt. see List No. 3300, dated February 1, 1955, plus 27½% and tonnage allowance. 4-ton lots 5%, 2-ton lots 2½%.

### L.C.C. Coated Drain Pipes

| | £ s. d. |
|---|---|
| 4 in. diameter in 9 ft. lengths ... ... ... per yd. run | 1 11 1 |
| 6 in. do. do. ... ... ... ... ,, | 2 5 6 |
| 4 in. diameter bends ... ... ... ... ... each | 19 9 |
| 6 in. do. do. ... ... ... ... ... ,, | 2 12 8 |
| 4 in. diameter branches ... ... ... ... ... ,, | 1 15 1 |
| 6 in. do. do. ... ... ... ... ... ,, | 4 4 2 |

Above prices for any quantity but under 5 cwt. carriage extra.

### Pitch Fibre Drain Pipes

| | £ s. d. |
|---|---|
| 2 in. diameter in 5 ft., 5 ft. 6 in. or 8 ft. lengths including couplings ... ... ... ... ... per ft. run | 1 6½ |
| 3 in. do. ... ... ... ... ... ... ,, | 1 10½ |
| 4 in. do. ... ... ... ... ... ... ,, | 2 6 |
| 5 in. do. ... ... ... ... ... ... ,, | 4 1½ |
| 6 in. do. ... ... ... ... ... ... ,, | 5 0½ |
| 4 in. diameter short radius ¼ bends ... ... each | 17 9 |
| 4 in. do. do. ½ bends ... ... ,, | 12 11 |
| 2 in. diameter 6 ft. radius bends (5 ft. lengths) ,, | 16 2 |
| 3 in. do. do. do. ,, | 19 8 |
| 4 in. do. do. do. ,, | 1 7 4 |
| 5 in. do. do. do. ,, | 2 4 0 |
| 6 in. do. do. do. ,, | 2 14 6 |

Above prices for loads of £60 and over.
Loads £25 to £59 19s. 11d. Plus 10%
Loads under £25 ... Plus 15%

### Asbestos Rain-Water Pipes and Fittings

| All less 17½% discount. | 2 in. | 2½ in. | 3 in. | 4 in. |
|---|---|---|---|---|
| Pipes, 6 ft. lengths ... ... per yd. | 4/7 | 4/10½ | 5/11 | 7/10 |
| Shoes ... ... ... each | 3/– | 3/3 | 3/10 | 5/2 |
| Single Branches ... ... ,, | 4/8 | 5/6 | 6/7 | 9/2 |
| Bends, square or obtuse ... ,, | 3/3 | 3/7 | 4/8 | 6/7 |
| Swan Necks, 4½ in. proj. ... ,, | 3/7 | 4/8 | 5/2 | 7/3 |
| do. 6 in. do. ... ,, | 3/10 | 5/2 | 5/10 | 7/10 |

### Asbestos O.G. Gutters and Fittings

| | 4 in. | 4½ in. | 5 in. | 6 in. |
|---|---|---|---|---|
| Gutters, 6 ft. lengths ... per yd. | 4/4 | 4/9½ | 5/9 | 6/10½ |
| Drop ends ... ... ... each | 3/6 | 4/– | 4/9 | 5/5 |
| Stop ends ... ... ... ,, | 1/1 | 1/2 | 1/3 | 1/5 |
| Angles ... ... ... ... ,, | 3/7 | 4/1 | 5/– | 5/10 |
| Nozzles ... ... ... ,, | 3/6 | 4/– | 4/9 | 5/– |
| Union Clips ... ... ... ,, | 1/9 | 2/1 | 2/6 | 2/11 |

### Asbestos Half-Round Gutters and Fittings

| | per | 3 in. | 4 in. | 4½ in. | 5 in. | 6 in. |
|---|---|---|---|---|---|---|
| Gutters, 6 ft. lengths | yd. | 3/0½ | 3/7½ | 3/8½ | 4/4½ | 6/1 |
| Drop ends ... ... | each | 2/6 | 3/– | 3/3 | 3/7 | 5/2 |
| Stop ends ... ... | ,, | 1/– | 1/1 | 1/2 | 1/3 | 1/5 |
| Angles ... ... ... | ,, | 2/10 | 3/3 | 3/7 | 3/10 | 5/2 |
| Nozzles ... ... ... | ,, | 2/6 | 3/– | 3/3 | 3/7 | 5/2 |
| Union Clips ... ... | ,, | 1/3 | 1/4 | 1/5 | 1/7 | 2/5 |

| | Per ton basis in London £ s. d. |
|---|---|
| Iron—Staffordshire Crown Merchant Quality ... ... | 52 17 6 |
| Mild Steel Bars ... ... ... ... ... ... ... | 47 8 6 |
| Mild Steel Hoops ... ... ... ... ... ... ... | 49 0 0 |

| | Ex Merchant's Stock per ton Two-ton lots £ s. d. |
|---|---|
| Soft Sheets C.R. and C.A.— | |
| 20 gauge ... ... ... ... ... ... ... ... | 62 7 6 |
| 24 gauge ... ... ... ... ... ... ... ... | 64 17 6 |
| 26 gauge ... ... ... ... ... ... ... ... | 67 17 6 |
| Galvanised Corrugated Sheets, 6-ft. to 9-ft.— | |
| 20 gauge ... ... ... ... ... ... ... ... | 70 18 0 |
| 24 gauge ... ... ... ... ... ... ... ... | 74 8 0 |
| 26 gauge ... ... ... ... ... ... ... ... | 79 13 0 |
| Galvanised Flat Sheets C.R. and C.A.— | |
| 20 gauge ... ... ... ... ... ... ... ... | 72 8 0 |
| 24 gauge ... ... ... ... ... ... ... ... | 75 18 0 |
| 26 gauge ... ... ... ... ... ... ... ... | 81 3 0 |

## ALUMINIUM AND ALUMINIUM ALLOYS

| (Base Prices) | | £ s. d. |
|---|---|---|
| Sheet BS 1740 S1C 18 SWG (36 in. wide)... ... | per lb. | 3 0½ |
| Sheet BS 1470 NS3 Utility 18 SWG (36 in. wide) | ,, | 2 11½ |
| Coiled strip BS 1470 S1C 18 SWG (24 in. wide) | ,, | 2 11½ |
| Coiled strip BS 1470 NS3 Utility 18 SWG (24 in. wide)... ... ... ... ... ... ... ... | ,, | 2 11 |
| Coiled strip, high purity, 22 SWG (12 in. wide) | ,, | 3 2 |
| Corrugated sheet BS 1470 NS3 Circular Profile 8 ft. × 32 in. × 20 SWG ... ... ... ... | per sheet | 1 14 1 |
| Corrugated sheet BS 1470 NS3 Industrial Profile 8 ft. × 31¼ in. × 20 SWG ... ... ... ... | ,, | 1 19 10 |
| Corrugated sheet BS 1470 NS3 Mansard Profile 8 ft. × 31¼ in. × 20 SWG ... ... ... ... | ,, | 1 13 1 |
| Extruded section BS 1476 E1C simple moulding | per lb. | 2 10½ |
| Extruded section BS 1476 E1C 1 in. diam. round | ,, | 2 8 |
| Extruded section BS 1476 HE19WP simple angle | ,, | 3 2 |
| Extruded section BS 1476 HE19WP 1 in. diam. round ... ... ... ... ... ... ... | ,, | 3 1 |
| Tubing BS 1471 T1C 1¼ in. O/D × 20 SWG ... | ,, | 4 8 |
| Tubing BS 1471 HT19WP 1¼ in. O/D × 20 SWG | ,, | 6 3 |

## PLUMBERS' BRASS WORK, etc.

Delivered in London area.

| All per dozen | B.S.S. ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|---|
| Screwdown bib cocks Crutch head for iron... ... ... | 87/– | 128/– | — | — | — | — |
| Toilet bib cocks for iron ... | 109/– | 158/5 | — | — | — | — |

## PLUMBERS' BRASS WORK, etc.—*continued*

| All per dozen | ½ in. | ¾ in. | 1 in. | 1¼ in. | 1½ in. | 2 in. |
|---|---|---|---|---|---|---|
| Screwdown stop cocks for iron | 66/- | 95/9 | 188/- | 363/- | 522/6 | 917/6 |
| do. with two unions for lead | 89/- | 132/- | 234/4 | 472/- | 623/6 | 1,389/6 |
| Double nut boiler screws ... | 18/8 | 26/5 | 47/6 | 48/6 | 67/- | 93/6 |
| Heavy Croydon ball valves ... | 77/- | 193/6 | 312/5 | 568/8 | 734/10 | — |
| Plumbers' union brass lead to iron ... ... ... ... | 19/6 | 23/6 | 38/6 | 52/10 | 70/6 | 165/- |
| | 1½ in. | 1½ in. | 2 in. | 3 in. | 3½ in. | 4 in. |
| Caps and Screws ... ... | 33/- | 40/8 | 59/6 | 92/5 | 118/10 | 155/3 |
| Brass Sleeves ... ... ... | — | 31/11 | 31/11 | 56/2 | 74/10 | 91/5 |
| | 1½×6 lb. | 1½×6 lb. | | 2×7 lb. | | 3×7 lb. |
| Lead P. trap with brass cleaning screws ... ... ... | 68/6 | 85/6 | | 137/- | | 233/9 |
| Lead S. trap do. do. | 82/9 | 102/9 | | 168/3 | | 302/3 |

| Solder : | | s. | d. |
|---|---|---|---|
| Plumbers' ... | 1 cwt. lots | 320/- | 3 7 |
| Tinmen's ... ... | „ „ | 404/- | 4 5 |
| Blow pipe ... | „ „ | 407/- | 4 6 |
| | 14 lb. lots per lb. | | |

### Copper Tubes and Sheets

Copper tubes BSS 659/1944 on the basic price of 25½d. per lb. plus gauge and manufacturing extras as follows. Minimum quantities, 10 cwt.

| | Extra d. | Total per lb. d. | Approx. per ft. d. |
|---|---|---|---|
| ⅜ in. × 19 gauge | 16½ | 42½ | 11½ |
| ½ in. × 19 „ | 14½ | 40½ | 15½ |
| 1 in. × 18 „ | 12½ | 38½ | 24 |
| 1¼ in. × 18 „ | 12½ | 38½ | 29 |
| 1½ in. × 18 „ | 12½ | 38½ | 34½ |
| 2 in. × 17 „ | 13½ | 39½ | 55½ |

Small Quantity extras :

| | |
|---|---|
| 10 cwts. to 5 cwts. ... ... ... ... ... | plus ½d. per lb. |
| 5 cwts. to 2 cwts. ... ... ... ... ... | „ 1d. „ |
| 2 cwts. to 1 cwt. ... ... ... ... ... | „ 2d. „ |

| Rolled Copper sheets up to 48 in. wide, basic price plus gauge and manufacturing extras ... ... ... ... | £ s. d. 255 0 0 |
|---|---|

### Zinc

| | £ s. d. |
|---|---|
| Sheet Zinc, 10 gauge (25 SWG), 5 cwt. lots upwards per cwt. | 7 15 3 |
| „ „ 12 gauge (23 SWG), „ „ „ „ | 7 14 9 |
| „ „ 14 gauge (21 SWG), „ „ „ „ | 7 13 6 |

### Brass Tube

| | |
|---|---|
| Brass tubes, basic price, plus gauge and manufacturing extras ... ... ... ... ... ... | per lb. 1 9½ |

## LEAD SHEET AND PIPES

Basis selling price to one address in London or Home Counties :

| | £ s. d. |
|---|---|
| Lead Sheet, English, 3½ lb. substance and upwards per ton | 104 15 0 |
| „ Water Pipe, in coils ... ... ... ... „ | 107 0 0 |
| Lead Soil Pipe, 10 ft. or over 2 in. to 4 in. in dia. „ | 108 10 0 |
| over 4 in. dia. ... ... ... „ | 110 10 0 |
| „ „ „ Gas or Untinned Compo pipe ... ... ... „ | 108 10 0 |

5 cwt. lots and over less 6d. per cwt. off basic prices.
Extras over Basis for quantities under 5 cwt. :

| | | |
|---|---|---|
| 3 cwt. and under 5 cwt. ... ... ... ... | per cwt. | 4 0 |
| 1 cwt. do. 3 cwt. ... ... ... ... | „ | 6 0 |

Smaller quantities than 1 cwt. priced specially.
Supplying sheet lead and lead pipes to less than basis weights and cutting to sizes less than basis charged extra according to current trade schedule.
Allowance for Old Lead, collected, £59 0s. 0d. per ton weighed at buyer's works.

## PLASTER, etc.

| | £ s. d. |
|---|---|
| Coarse Pink in 1-ton loads and over delivered on site per ton | 8 8 3 |
| do. White do. do. do. „ | 8 17 9 |
| Sirapite Coarse BSS 1191 Class C do. „ | 8 19 9 |
| do. Fine do. do. do. „ | 9 7 6 |
| do. Browning BSS 1191 Class B do. „ | 8 19 9 |
| do. Board Finish do. do. „ | 8 19 9 |
| Blue Lias Lime, in 6-ton loads ... ... ... „ | 6 14 6 |
| Hydrated Lime (Grey) in 6-ton loads ... ... „ | 5 10 0 |
| do. (White) do. ... ... ... „ | 6 0 0 |
| Lump Lime (Grey) do. ... ... ... „ | 5 7 0 |
| do. (White) do. ... ... ... „ | 5 14 6 |
| White Keen's or Parian Cement, in 1-ton loads ... „ | 12 4 9 |
| Pink Keen's or Parian Cement, in 1-ton loads ... „ | 11 19 6 |
| Granite Chips, in 6-ton loads ... ... ... „ | 2 5 3 |
| Hair ... ... ... ... ... ... ... ... per cwt. | 4 17 6 |
| Gypsum Plaster Lath or Base Board, ⅜ in. thick, 600 yds. and over in one delivery. Delivered site per yd. | 2 2½ |
| 1,200 yds. ... ... ... ... ... ... ... „ | 2 1½ |
| do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site ... ... „ | 2 8 |
| 1,200 yds. ... ... ... ... ... ... ... „ | 2 7 |
| Gypsum Plaster Wall Boards, 3 and 4 ft. wide 6 to 12 ft., ⅜ in. thick, 600 yds. and over in one delivery. Delivered site ... ... ... ... „ | 2 5½ |
| 1,200 yds. ... ... ... ... ... ... ... „ | 2 4½ |
| do. Insulating do. ½ in. thick, 600 yds. and over in one delivery. Delivered site ... ... „ | 2 11 |
| 1,200 yds. ... ... ... ... ... ... ... „ | 2 10 |

## PAINTS AND DISTEMPER

| Delivered London area. | £ s. d. |
|---|---|
| Ceiling Distemper ... ... ... ... ... ... per cwt. | 1 7 6 |
| Washable Distemper ... ... ... ... ... „ | 5 15 0 |
| Gloss Paint ... ... ... ... ... ... ... per gal. | 2 16 0 |
| Super Snowcem cement paint (in 1 cwt. drums) ... per cwt. | 5 0 0 |

### Lead Products and Oils

| | £ s. d. |
|---|---|
| Ground White Lead, in 1 cwt. kegs ... ... ... per cwt. | 8 7 6 |
| Genuine White Lead Paint, 1-19 gal. lots in 1 gal. tins per gal. | 3 6 6 |
| Genuine Red Lead, Dry, 1 cwt. keg (10 ton lots) per cwt. | 5 12 6 |
| do. do. do. (1 cwt. lots) „ | 6 19 0 |
| Genuine Linseed Oil Putty, 1 cwt. keg ... ... „ | 2 13 6 |
| Size XD quality 28 lb. ... ... ... ... per tin | 9 0 |
| Raw Linseed Oil (5 gal.) drums extra ... ... per gal. | 19 2 |
| Boiled Linseed Oil (5 gal.) do. ... ... „ | 1 0 0 |

### Sundries

| | £ s. d. |
|---|---|
| Turpentine substitute ( 5 gal.) drums extra ... „ | 5 4½ |
| do. do. (40 gal.) do. ... ... „ | 4 8½ |
| Solignum, Brown (5 gal. cans) Exterior ... ... „ | 8 8 |
| Creosote (40 gal. barrels) ... ... ... „ | 2 3 |
| Paste Powder (1 lb. packets) ... ... ... ... per lb. | 2 4 |
| White Lining Paper ... ... ... ... ... per piece | 1 2 |

## VARNISHES, etc.

| Delivered London area. | £ s. d. |
|---|---|
| Oak Varnish, Outside or Inside ... ... ... per gal. | 2 0 0 |
| Oak, Pale Copal do. do. ... ... ... „ | 2 0 0 |
| Hard Drying Oak for Inside ... ... ... ... ... „ | 2 5 0 |
| Crystal Paper Varnish do. ... ... ... ... „ | 2 8 0 |
| Eggshell Flat Varnish do. ... ... ... ... „ | 2 2 0 |
| Finest Carriage Varnish ... ... ... ... ... „ | 2 7 0 |
| Front Door Varnish ... ... ... ... ... „ | 2 4 0 |
| Japan Gold Size ... ... ... ... ... ... „ | 1 12 0 |
| Black Japan ... ... ... ... ... ... ... „ | 1 16 0 |
| Brunswick Black ... ... ... ... ... ... „ | 1 12 0 |
| Berlin Black ... ... ... ... ... ... ... „ | 1 10 0 |
| Terebene ... ... ... ... ... ... ... „ | 1 12 0 |
| Knotting (1 gal. bottles free) ... ... ... ... „ | 1 15 0 |
| French and Brush Polish (do.) ... ... ... ... „ | 1 15 0 |

## GLASS

| Delivered London area. | s. d. |
|---|---|
| 18 oz. Sheet Glass Ordinary Glazing Quality— Cut Sizes... ... ... ... ... ... per ft. sup. | 10 |
| 24 oz. do. do. do. do. „ | 1 0½ |
| 26 oz. do. do. do. do. „ | 1 3 |
| 32 oz. do. do. do. do. „ | 1 7½ |
| ⅛ in. Rolled Plate... ... ... ... ... ... „ | 1 3½ |
| ¼ in. Rolled and Rough Cast... ... ... ... „ | 1 6½ |
| ½ in. do. do. ... ... ... ... „ | 1 7½ |
| ¼ in. Figured Rolled and Cathedral, Standard patterns— White Group 1 ... ... ... ... ... „ | 1 3½ |
| do. Group 2 ... ... ... ... ... „ | 1 9½ |
| do. Standard Tints ... ... ... ... ... „ | 2 1½ |
| do. Special Tints ... ... ... ... ... „ | 7 3 |
| ¼ in. Pinstripe, Hammerstripe, Reeded, Reedlyte and Luminating Group 3 ... ... ... ... „ | 1 8½ |
| ¼ in. Wired Cast ... ... ... ... ... „ | 1 10½ |
| ¼ in. Georgian Wired Cast ... ... ... ... „ | 1 11 |

| Hollow Glass Blocks— | | | |
|---|---|---|---|
| P.B.2 | Cross reeded | 5½×5½×3⅞ in. ... ... | each 3 9 |
| P.B.3 | Broad reeded | 7½×7½×3⅞ in. ... ... | „ 5 9 |
| P.B.32 | Cross reeded | 7½×7½×3⅞ in. ... ... | „ 5 9 |
| P.B.4 | Prismatic | 7½×7½×3⅞ in. ... ... | „ 6 6 |
| P.B.5 | Flemish | 7½×7½×3⅞ in. ... ... | „ 5 9 |
| P.B.6 | Boomerang | 7½×7½×3⅞ in. ... ... | „ 6 6 |
| Half Size Blocks— P.B.32 | Cross reeded | 7½×3½×3⅞ in. ... ... | „ 4 10 |
| Radiused Corner Blocks to match up with— P.B.2 | Cross reeded | ... ... ... ... | „ 8 1 |
| P.B.3 | Broad reeded | ... ... ... ... | „ 9 8 |
| P.B.32 | Cross reeded | ... ... ... ... | „ 9 8 |

P.B.2, P.B.3, P.B.32 are also supplied in Light Diffusing Blocks at same price.

| | | | |
|---|---|---|---|
| ¼ in. Polished Plate Glass, G.G. quality— In plates not exceeding | 2 ft. sup. | ... | per ft. sup. 4 7 |
| „ „ „ | 5 ft. sup. | ... ... | „ 5 7 |
| „ „ „ | 45 ft. sup. | ... ... | „ 7 6 |
| „ „ „ | 100 ft. sup. | ... ... | „ 7 6 |
| ¼ in. Polished Plate, extra sizes, *i.e.*, plates exceeding 100 ft. sup. or 160 in. one way or 96 in. both ways. G.G. quality—Not exceeding 135 ft. sup. or 240 in. one way or 130 in. both ways | | ... | „ 11 4 |
| Not exceeding 180 ft. sup. or | do. | ... | „ 15 0 |

Plates exceeding 180 ft. sup. prices on application.
Substances other than ¼ in. Polished Plate at Special Prices.
Quantity Tariff—Sheet and Sundry Glass.
The following prices apply to minimum quantities of one size and one pattern delivered by the manufacturer to one site at one time.

| Description of Glass— | Minimum quantity | per ft. sup. s. d. |
|---|---|---|
| 18 oz. sheet O.Q. ... ... ... ... ... ... | 3,000 | 7½ |
| 24 oz. „ „ ... ... ... ... ... ... | 2,000 | 9½ |
| 26 oz. „ „ ... ... ... ... ... ... | 2,000 | 11½ |
| 32 oz. „ „ ... ... ... ... ... ... | 2,000 | 1 3½ |
| ⅛ in. Rolled Plate... ... ... ... ... ... | 1,000 | 10½ |
| ¼ in. Figured Rolled and Cathedral Standard Patterns, White Group 1 ... ... ... | 1,000 | 10½ |
| do. Group 2 ... ... ... | 1,000 | 1 2½ |
| ¼ in. Pinstripe, Hammerstripe, Reeded, Luminating and Spotlyte Group 3 ... ... ... | 1,000 | 1 2½ |
| ⅜ in. Rolled Plate or Rough Cast ... ... ... | 2,000 | 1 2 |
| ½ in. do. do. ... ... ... | 2,000 | 1 2½ |
| ½ in. Wired Cast, Hexagonal ... ... ... ... | 2,000 | 1 5 |
| ½ in. Georgian Wired Cast ... ... ... ... | 2,000 | 1 5½ |

# THE BUILDER RATES OF WAGES

**AS FROM FEBRUARY 6th., 1961. (Every endeavour is made to ensure accuracy but we cannot be responsible for errors)**

**1. Craftsmen and Labourers.**

| Region | Craftsmen | Labourers |
|---|---|---|
| | s. d. | s. d. |
| England & Wales (Grade A) ... | 5 0 | 4 4½ |
| London ... ... | 5 1½ | 4 6 |
| Liverpool and District ... | 5 1½ | 4 6 |
| Scotland... ... | 5 0 | 4 4½ |

**2. Apprentices.**

| Age | Per cent. of Craft Rate | London and Liverpool Dist. | England, Wales |
|---|---|---|---|
| | | s. d. | s. d. |
| 15 | 25 | 1 3½ | 1 3 |
| 16 | 33½ | 1 8½ | 1 8 |
| 17 | 50 | 2 6½ | 2 6 |
| 18 | 62½ | 3 2½ | 3 1½ |
| 19 | 75 | 3 10½ | 3 9 |
| 20 | 87½ | 4 6 | 4 4½ |

**3. Young Male Labourers.**

| Age | Per cent. of Craft Rate | London and Liverpool Dist. | England, Wales and Scotland |
|---|---|---|---|
| | | s. d. | s. d. |
| 15 | 33½ | 1 6 | 1 5½ |
| 16 | 45 | 2 0½ | 1 11½ |
| 17 | 66½ | 3 0 | 2 11 |
| 18 | 100 | 4 6 | 4 4½ |

NORTHERN IRELAND is not included; rates fluctuate so much from district to district that reference should be made to local offices.
WATCHMEN.—The rates per shift for watchmen engaged on building sites is 27s. 6d. in London and Liverpool District, and 26s. 3d. in the provinces.
FEMALE OPERATIVES.—In all districts throughout the country except in Scotland the rate of wages for women, aged 19 and over, engaged in craft processes is 4s. 1½d. per hour. Women engaged on work other than craft processes, 3s. 9½d. per hour. In Scotland the rate for the woman craftsman is 4s. 4½d. after a probationary period, and the woman labourer, 3s. 10½d.

## New Companies

THE FOLLOWING NEW COMPANIES, registered in England, have been announced by Jordan and Sons, Ltd., company registration agents.

LACEY & YOUNG LTD.—Regd. Feb. 15, 1961. 5 Old Steine, Brighton 1. Secy.: Harold H. Young. Bldrs., etc. Nom. cap.: £1,000.

JOHN SWALE LTD.—Regd. Feb. 15, 1961. Henshaw-la., Yeadon, nr. Leeds. Secy.: John Swale. Bldrs., pblc. wks. contrs., etc. Nom. cap.: £2,000.

EDWARDS & TILBURY LTD.—Regd. Feb. 16, 1961. 31 Great Goodwin-dr., Merrow, Guildford. Secy.: R. Edwards. Bldrs., etc. Nom. cap.: £100.

CRESCENT BUILDERS (NEWPORT, MON.) LTD.—Regd. Feb. 16, 1961. 44 Somerset-rd., Newport, Mon. Secy.: Elizabeth A. Nock. Nom. cap.: £100.

BRIDGE & SKINNER LTD.—Regd. Feb. 20, 1961. 15 Gt. Western-rd., W9. Secy.: John W. Skinner. Bldrs., plbrs., santy. engrs., etc. Nom. cap. £100.

H. & P. BUILDERS (FARSLEY) LTD.—Regd. Feb. 20, 1961. 103 Town-st., Farsley, Pudsey, Yorks. Secy.: J. E. Pearson. Nom. cap.: £3,000.

LANTERN BUILDING CO. LTD.—Regd. Feb. 21, 1961. 20 High-st., N8. Secy.: Patricia B. Marks. Nom. cap.: £100.

G. M. ROWE LTD.—Regd. Feb. 22, 1961. 6 & 8 Sherborne-rd., Newton Abbot, Devon. Secy.: Rodney L. G. Reed. Bldr., contr. and decr. Nom. cap.: £1,000.

A. J. ROBEY LTD.—Regd. Feb. 22, 1961. 'Hollyhocks,' Rowstock, Harwell, Berks. Secy.: Mabel A. Robey. Bldrs., etc. Nom. cap.: £5,000.

WAYADVAN BUILDERS LTD.—Regd. Feb. 24, 1961. Nom. cap.: £100. Sub.: Jean Herbert, 156 Strand, WC2.

J. DAVIES (WEST WICKHAM) LTD.—Regd. Feb. 24, 1961. Bldrs., etc. Nom. cap.: £100. Sub.: Dorothy M. Graeme, 61 Fairview-ave., Gillingham.

DALMAR BUILDING CO. LTD.—Regd. Feb. 28, 1961. 87 Wolmer-gdns., Edgware. Secy.: P. J. Davis. Nom. cap.: £100.

BROWN & GUNN LTD.—Regd. Feb. 28, 1961. The Bungalow, Osier-rd., Spalding, Lincs. Secy.: Geo. M. Gunn. Bldrs., etc. Nom. cap.: £1,000.

W. A. DARTON LTD.—Regd. March 1, 1961. 21 Hever Croft, Eltham, SE9. Secy.: L. J. Duggan. Bldrs., bldg. contrs., etc. Nom. cap: £3,000.

A. R. CLARKE (BUILDERS) LTD.—Regd. March 1, 1961. 129 Kings-rd., Halstead, Essex. Secy.: James B. Wicks. Nom. cap.: £3,000.

BUSWENS BUILDERS LTD.—Regd. March 3, 1961. Nom. cap.: £100. Sub.: Jean Herbert, 156 Strand, WC2.

B.A.C.E. (CHESTER) LTD.—Regd. March 3, 1961. Sutton-hse., Guilden Sutton, nr. Chester. Secy.: B. C. Haslam. Bldrs., etc. Nom. cap.: £1,000.

QUEENSHILL HOMES LTD.—Regd. March 3, 1961. Cabinet-chbrs., 20a Lower Basinghall-st., Leeds 1. Secy.: Dorothy A. Day. Bldrs., etc. Nom. cap.: £100.

HULME & HOLDEN LTD.— Regd. March 7, 1961. 29 Rutland-rd., Hazel Grove, Ches. Secy.: C. Hulme. Bldrs., jnrs., etc. Nom. cap.: £1,000.

A. L. GATWARD LTD.—Regd. March 8, 1961. Grays Inn-chbrs., 20 High Holborn, WC1. Secy.: Mrs. Annie M. Gatward. Bldrs. and contrs., etc. Nom. cap.: £1,000.

W. EYRE & SON LTD.—Regd. March 8, 1961. 5 St. Paul's-rd., Ashby, Scunthorpe, Lincs. Secy.: Derek Bone. Bldr. and contr. Nom. cap.: £10,000.

W. R. CALLER (BUILDERS) LTD.—Regd. March 8, 1961. 226 Perry Hill, Catford, SE6. Secy.: W. R. Caller. Nom. cap.: £500.

MODERN HOMES (TONBRIDGE) LTD.—Regd. March 9, 1961. Bldrs., etc. Nom. cap.: £1,000. Sub.: C. Barclay, Barclay-hse., Tonbridge.

A. F. LEWIS & SONS LTD.—Regd. March 9, 1961. Bldrs., etc. Nom. cap.: £5,000. Dir.: M. G. J. Rogers, 161 Lexden-rd., Colchester.

## Timber Engineering

*Application to the Housing Site*

BY ADOPTING platform frame and post-and-beam techniques of timber construction the housing architect and builder move into line with modern engineering practice and reap appreciable economic benefits by doing so.

This view was expressed recently at Hull when members of the East Yorkshire Architectural Society joined members of the Guild of Building, Hull, to hear a lecture on 'Timber and Timber Houses.' Mr. J. A. Bell, President of the Guild, was in the chair and the lecture was delivered by Mr. R. C. Bennet, a Canadian architect, who came to England earlier this year as a UK representative of the British Columbia Lumber Manufacturers Association. With Mr. Bennet was Mr. Owen A. Lauritzen, Timber Development Director of the BCLMA.

'Like the skeleton frame of modern commercial buildings,' MR. BENNET told the audience of 60 Humber architects and builders, 'timber house framing provides a true carcass, free-standing and braced to carry the entire load of upper floors and roof. Thus a leading principle of modern engineering practice is brought to the housing site but without creating a need for any special skill and tackle.'

Mr. Bennet spoke of the revolution through which building technique in Canada and the United States was passing. The trend everywhere was towards component making and fabrication in shops and factories. Indeed, the prediction was that home builders, in the not too distant future, would become merchants of houses consisting of 'easy-to-erect' parts bought from the fabricators. Signs of a similar trend were beginning to appear in Britain.

'The swing is in the direction of having precision work done under cover where your skilled men can work best,' Mr. Bennet added. 'This kind of fabrication cannot help but pay, whether it be followed for a single house or quantity production. All you need is a table-saw with a couple of accessories and a big shed to work in. Almost any builder has that.'

### Building Safety at Stoke-on-Trent

AS ITS MAIN CONTRIBUTION to Commonwealth Training Week from May 29 to June 4 the City of Stoke-on-Trent College of Building is arranging a 'Safety in Building' exhibition to be held at the college. The exhibition is being arranged in conjunction with the North Staffs. Building Trades Employers Association and with the support of HM Factory Inspectorate. It is to be part of a safety week during which general safety courses of two hours' duration will be held throughout each day. Essay competitions are also to be arranged to stimulate interest. Details from the college, at Cauldon-place, Shelton, Stoke-on-Trent.

# TECHNICAL REVIEW

*This Review of plant, equipment and materials—in most cases new or with new features—is intended to give brief details only of the products mentioned. Notices are based on data supplied by the manufacturers. Additional information and prices can be obtained either direct or by using the prepaid Readers' Service form which appears on page 114 of this issue. The form can be used for more than one inquiry.*

## 1. Acoustics

A range of ACOUSTIC PANELS has been developed to allow acoustic treatment to be applied to walls, as well as ceilings, without a loss in decorative effect. These panels, which consist of a microporous membrane mounted on special board, have no visible holes and do not attract dust. The membranes are factory-treated with a special coloured lacquer to preserve their acoustic properties. The lacquer is non-inflammable and can be supplied in any colour. The panels themselves can be cut to any shape desired and are easy to fix.

*Applied Acoustics Ltd.*
*76 Wimpole-st., London, W1.*

## 2. Bathroom Fixtures

From our reading of a recent Government Bill, it seems likely that a shower bath may, in future, be acceptable as a suitable alternative to a fixed bath—at least in new buildings. This gives added interest to any new SHOWER FITMENTS now coming on the market, such, for instance, as a glass fibre unit which is currently being shown at the Ideal Home exhibition. This shower, which is attractively designed, fits easily into a corner and a plastic curtain provides an effective protection against splashing. The plumbing fitments include an anti-scald mixing valve on the standard pattern unit and alternative valve arrangements can be made to suit individual requirements. In height the shower stands 7 ft. 6 in. and has a 3 ft. 7½ in. width at the base. As might be expected from the material used, the unit is very light, being little more than 50 lbs. in weight.

*Reinforced Plastic Developments, Shere, Surrey.*

*A new shower fitment in glass fibre*

## 3. Flooring

A new type of FLOORING TILE made from a cork/Hycar rubber combination is now being produced which will withstand the pressures exerted by the popular stiletto heel. In addition it is oil resistant and has excellent non-slip properties, even when thoroughly wet. It is made in one size only, 12 in. x 12 in. x ⅛ in.

The flexible cork/Hycar combination gives a pleasant springy feel and is silent underfoot. It can be given a high-gloss polish or it can be used without any surface treatment and is easily scrubbed clean. The tiles will adhere to any normal under-surface and may be used in conjunction with recommended tile adhesive. The underside of the tile is embossed to give greater sticking power and economy of adhesive.

*British Technical Cork Ltd., Reading, Berks.*

## 4. Windows

A simplified type of DOUBLE GLAZED WINDOW, now showing at the Ideal Home exhibition, uses the smallest number of timber profiles possible and is particularly suited to domestic use. The window can be produced to open by any one of the conventional methods. It can open from either side, from the top or bottom or it can be horizontally pivot hung. By the use of mullions or transomes it may be coupled to form multiple units or simple curtain walling units. Glazing is carried out at the factory so that the window arrives on the site ready for insertion into the building.

The space between the glass is 1⅝ in. and is sealed by the method of glazing although no exhaustion or dehydration is carried out. Any tendency for the space between the glass to condense is resisted by a desiccant capsule which is inserted into the space at the factory. It is possible that in certain conditions this capsule may require renewal after a long period of time.

*Holcon Ltd.,*
*21 Mackenzie-st., Slough, Bucks.*

## 5. Lighting

The blending of traditional design and modern materials of construction can produce attractive results, such, for instance, as the Argyle lamp which is intended for PORCH LIGHTING and similar uses. This is modelled from a brass original produced in Birmingham more than 100 years ago. The candle formerly used in it has been replaced by a filament lamp which operates from the mains.

*A modern counterpart of the old carriage lamp*

Another notable change is the replacement of the brass of the old-fashioned carriage lamp by anodised and dyed aluminium. This needs no metal polish or hand rubbing to keep it clean and any grime or dust which collects on the surfact can be wiped off with a damp cloth.

*Raydyot Ltd.,*
*Graham-street, Birmingham, 1.*

## 6. Steelwork

A new type of portal frame construction, known as the 'Arcon' PORTAL BUILDING, has been designed primarily for overseas use where superimposed loading requirements do not exceed 6 lb. per sq. ft. The new range of structures will withstand wind loadings of 100 m.p.h. and is consequently suitable for all territories, including hurricane areas.

Some new features are incorporated in the latest design including the method of purlin bracing which helps to counter the effects of high wind loading. Buildings can be erected with any number of spans side by side, forming 'multispan' buildings without duplicate columns. There is a choice of five different spans (33 ft. 4 in. to 66 ft. 8 in.) in two alternative heights (normal heights to eaves of 14 ft. 6 in. or 20 ft. 6 in.).

*Taylor Woodrow (Building Exports) Ltd., 41 Welbeck-st., London, W.1.*

## 7. Wood Polishes

In the field of WOOD POLISHES an interesting high grade silicone wax has been developed that incorporates insecticides, germicides and fungicides. This should prove a useful protection for floors and furniture as it is claimed that these additives are powerful enough to kill flies, cockroaches, wood-boring beetles and other pests after only a short period of contact with the polished surfaces. The harbouring of harmful germs is prevented and the fungicides stop mildew and other mould growths.

*Cuprinol Ltd.,*
*9 Upper Belgrave-st., London, SW1.*

# News in Brief

### Buckinghamshire Motorway

THE MINISTER OF TRANSPORT on March 23 announced a 13½ mile motorway in Buckinghamshire, expected to cost about £7m. It will provide a route for traffic now using the congested part of the London-Oxford trunk road—the A40. The proposed route begins near the junction of the A40 with Burkes-road at Beaconsfield. The motorway will run in a general north-westerly direction, through open country south of High Wycombe to Stokenchurch, where it will rejoin the A40 west of its junction with Mill-road. A viaduct will be necessary to carry the motorway over the river Wye, Station-road and the railway line at Loudwater. It will have two 36 ft. carriageways for the 5 miles from Beaconsfield to a two-level junction with the A404 at Handy Cross, narrowing to two 24 ft. carriageways for the remainder of the route. Side roads will be carried over or under the new by-pass.

### Lancaster House Opening

THE STATE APARTMENTS of Lancaster House, St. James's, will be re-opened for public viewing on Saturday and Sunday afternoons and on bank holidays from April 1.

### King Henry VIII Wine Cellar

THE WINE CELLAR in Horse Guards-avenue, Whitehall, will be open for public viewing on Saturdays from April 1. Admission will be free but it is by appointment only and application for a pass must be made in advance to the Secretary, Ministry of Works (AS8L), Lambeth Bridge House, Albert-embankment, London, SE1.

### Local Authority Aids Builders

ABERGAVENNY, MON., BOROUGH COUNCIL is to aid private builders to develop a housing site in the town. The council is to provide a sewage pumping station, widen a road and provide street lighting for the developers, who plan to build 200 houses on a site in the town. The work will cost the council about £6,000.

### Damage to Unmade Roads

ROCHFORD RURAL DISTRICT COUNCIL is to investigate the possibility of a by-law being made to prevent damage to unmade roads when there is further development. The Council is to inquire of the Ministry of Housing and Local Government about the possibility of either limiting a developer to the use of certain portions of unmade streets in connection with his development or of requiring him to make good any damage caused.

### Effluent and Water Treatment

THE second Effluent and Water Treatment Exhibition and Convention will be held at the Seymour Hall, London, W1, from October 31 until November 3 next. It will be a third larger than the first show held in the same hall last year.

### Institute of Welding

THE SPRING MEETING of the Institute of Welding will be held at the Institute, 54 Princes-gate, London. SW7, between April 24 and 28 to coincide with the Engineering, Marine, Welding and Nuclear Energy Exhibition at Olympia. The theme will be 'Recent Developments in the Welding and Allied Processes.'

### Overseas Building Notes

NUMBER SEVENTY in the overseas building notes series, prepared by the tropical building section of the Building Research Station, discusses the factors which determine housing densities and the purposes which density indices may serve in planning. The Note, 'Tropical Building Studies No. 1,' is the first in a new series on building in the tropics.

### FEROPA President Re-elected

AT THE GENERAL ASSEMBLY of the Fédération Européene des Syndicats de Fabricants de Panneaux de Fibres in Brussels on March 9 and 10 Mr. C. G. Cullen, director of the building products division of the Bowater Organisation, was re-elected as president for 1961-62. He will be supported by two vice-presidents, Mr. J. Delangre, of France, and Dr. Oelschlägel, of Austria.

### Drawing Office Equipment Exhibition

THE FIRST NATIONAL Drawing Office Equipment and Materials Exhibition in the UK is to be held in the Royal Horticultural Society's New Hall, Westminster, from June 5-8, 1961. The exhibition is being held to give facilities to manufacturers of drawing office equipment and materials to show their specialised equipment and the latest developments in this industry. The organisers are UTP Exhibitions Ltd., 9 Gough-square, London, EC4. Director: Mr. J. J. Peake.

### Car Parking Provisions, Berkshire

ALL PLANS SUBMITTED to Berkshire CC in future must show adequate provision for car parking if they are to get through. A booklet has been issued for the guidance of architects on the standard required, covering almost every type of development. The county council has laid down that there must be one car space for each dwelling. For houses over 2,000 sq. ft. they recommend additional space.

### Public Bodies and Electrical Installations

THE NUMBER of corporations, urban district councils, county councils and other public bodies which have decided to place contracts for electrical installation work only with firms on the roll of the National Inspection Council for Electrical Installation Contracting is steadily growing, states the Council. Copies of the roll of approved electrical installation contractors can be seen on request at all service centres of the Electricity Board.

### Insuring Against Woodworm

A SIMPLE and inexpensive policy against woodworm attack, similar to that available for fire insurance, is being offered by a new company, Woodworm Insurance Co. Ltd., in conjunction with the Crusader Insurance Co. Ltd. The cost of premiums may be included in repairs allowances for Schedule 'A' income tax purposes. The policy will cover the entire building exclusive of furniture, garden sheds or posts. The offices of the company are at 16 Dover-street, London, W1.

### European Housing Statistics

THE QUARTERLY BULLETIN of housing and building statistics for Europe, prepared for the United Nations Organisation by the secretariat of the Economic Commission for Europe, is now available, price 4s. 6d., from HM Stationery Office. The bulletin shows dwellings completed and under construction, the apparent consumption of cement, the production of bricks, unemployment figures, price indices, and wholesale prices of building materials to the end of the second quarter of 1960.

### Soviet Trade and Industry Exhibition

THE SOVIET TRADE AND INDUSTRY EXHIBITION, organised by agreement between the USSR Chamber of Commerce and the Association of British Chambers of Commerce, will open at Earls Court on July 7. Of the approximate area of 270,000 sq. ft. of space to be occupied some 13,988 sq. ft. will be devoted to the building industry. The exhibition is being organised on an exchange basis, the British Exhibition in Moscow being the United Kingdom contribution to intercountry trade.

### Coated Macadam Surfacing Materials

ARISING FROM requests by architects, surveyors, contractors, and others for advice on appropriate specifications for roads and footpaths on housing and factory estates and parks, the Federation of Coated Macadam Industries has published a model specification for such work. The work is divided into two parts, one for roads and a second for footpaths, and contains marginal notes for guidance. A number of alternative materials are included. Copies may be obtained, without cost, from the Federation, at 37 Chester-square, London, SW1.

### Russian and Japanese Patents

THE DERWENT INFORMATION SERVICE is introducing a new publication to give English translations of the 'USSR Official Bulletin of Patents and Inventions.' A booklet, available from the publishers, at Rochdale House, Theobalds-road, London. WC1, gives information on Russian patent law and procedure to give intending subscribers an opportunity to evaluate its probable usefulness. The booklet also reviews other activities of the Derwent organisation and provides a useful guide to foreign patent procedure. A pamphlet on Japanese patent law is also available which provides a background for the commencement in May of weekly summaries of Japanese patents.

### Sealant Manufacturers' Conference

THE TECHNICAL PANEL of the newly formed Sealant Manufacturers' Conference of the Federation of British Rubber and Allied Manufacturers met on March 22 to begin its work of drawing up performance standards for rubber-based sealing com-

pounds, together with a code of practice for their application in the building, shipbuilding and other industries.

The following officers were elected: chairman: Dr. Wallace Rubin (Kelseal Ltd.); vice-chairman: Mr. L. E. Puddefoot (B.B. Chemical Co. Ltd.); members of the technical panel: Dr. J. Bowler-Reed (Expandite Ltd.); Mr. L. W. Cutler (British Paints Ltd.); Dr. B. S. Jackson (Evomastics Ltd.); Mr. G. H. Marsh (The Minnesota Mining and Manufacturing Co. Ltd.); and Mr. A. G. Storey (T. & W. Farmiloe Ltd.).

### Afforestation in National Parks

A STRONG PLEA for statutory control of commercial afforestation of open land in National Parks is made in a memorandum published on March 8 jointly by the standing committee on national parks of the Councils for the Preservation of Rural England and Wales and the Joint Action Group for the Protection of Dartmoor and Exmoor. The sponsors say that they have little confidence in the scheme of voluntary consultation with planning authorities ('The Builder' of February 17) to which the Minister of Housing and Local Government recently gave his approval. The memorandum may be obtained from 4 Hobart-place, London, SW1.

### Experimental Farm Buildings Scheme

THE AGRICULTURAL RESEARCH COUNCIL whose address is Cunard Building, 15 Regent-st., London, SW1, has received a large number of offers from farmers and landowners to co-operate in its experimental farm buildings scheme. Many of these offers relate to the use of slatted floors for cattle; the Council's farm buildings unit has therefore planned an experimental project on the subject and grants are being made to a number of applicants. The Council will welcome applications on subjects other than to do with slatted floors within the scope of the scheme.

### Flood-Damaged Buildings

A CORRESPONDENT, writing from the Cuprinol Preservation Centre concerning outbreaks of decay in flood-damaged buildings, has drawn our attention to certain statements made in an article on the subject which appeared in 'The Builder' of March 10. Having recently seen a house where the brick-red spores of the dry-rot fungus literally formed a 'carpet' on the sub-flooring, he suggests that greater emphasis should be laid on the fact that 'signs of new outbreaks of decay are not likely to appear immediately and unless a deliberate search is made they may well not become noticeable within twelve months.' The importance of early discovery with subsequent immediate action cannot, concludes our correspondent, be over-rated.

### Technical Data on Patent Glazing

MEMBERS of the Patent Glazing Conference have published a folder containing technical information sheets dealing with aluminium alloy and lead-clothed steel patent glazing bars. Other sheets to be published this year will cover galvanised steel bars and flat roof lighting. Copies of this technical data may be obtained from the Conference, at Burwood House, Caxton-street, London, SW1.

### Garden Contractors

THE NATIONAL ASSOCIATION OF AGRICULTURAL CONTRACTORS has formed a garden section whose main objects are to make known the existence of an association of garden contractors, to promote understanding and facilitate discussion, to compile and publish a register of persons engaged in gardening contracting, and to hold or arrange exhibitions and trade displays. It is also to encourage research. Further details of the new section may be obtained from the Association, at 52 Bedford-row, London, WC1.

## Trade News

### Leaflet on Adhesives

CROID LTD., of Imperial House, Kingsway, WC2, have issued a leaflet on their glues, both for woodworking and building. The grades listed can be used on a wide range of materials, including chipboard, pvc sheeting, polystyrene, leather, linoleum and cement. Copies are available from the company.

### Coke Burning Appliances

THE FOURTH supplementary issue of data sheets for the sixth edition of the Coke Burning Appliances Handbook has been published by, and is available from, the Gas Council, 1 Grosvenor-place, London, SW1. Among the amendments are additions to the lists of open fires, open fires with boilers, freestanding cookers and domestic boilers.

### New London Depot

RAMSAY LADDERS of Forfar, Angus, have established a wholesale supply depot in London at Park Royal Goods Yard, Coronation-rd., NW10.

The depot, which carries comprehensive stocks of the full Ramsay range of aluminium and wooden ladders, steps and trestles, extends the service already provided by the company's supply depots in Leeds, Edinburgh and Glasgow.

### Insulation Board Agency

PYRESTOS LTD., of 8 Buckingham Palace Gardens, SW1, are now the selling agents for 'Pyrestos' board produced by Board Processors Ltd. of West Drayton. This fibre insulation board has been pressure treated to give Class I spread of flame rating throughout.

### Production Expansion

BOLTON GATE CO. LTD., manufacturers of collapsible gates and doors, are converting into manufacturing units three former cotton mills adjacent to their existing works in Waterloo-street and Turton-street, Bolton. The company's premises now cover ten acres with a production area of more than 100,000 sq. ft. which will be doubled when the conversion project is complete. A 50 per cent. increase in production is anticipated within eighteen months and a 100 per cent. increase within three years.

### Marketing Agreement

C. H. JOHNSON (MACHINERY) LTD., manufacturers of dumpers announce the conclusion of a co-operation agreement with J. Wormser, A.G., of Zurich, and Spanner Baumaschinen G.m.b.H., of Frankfurt, Germany, for the development of the common products of each of these companies in the European Common Market areas, and the EFTA areas. The three companies will work in close co-operation in the marketing of all their products, and particularly also in design and manufacture of new products suitable for these markets.

### New Division

A NEW DIVISION of Coventry Compressors Ltd., 32 Stewarts-rd., London, SW8, has been formed to deal exclusively with the problems of penetrating all types of materials, including glazed wall tiles, quartz, refractory bricks, granite and marble, used in construction and installation work.

By using hollow tubular steel drills tipped with industrial diamonds these materials can be drilled quickly and quietly. The machinery required is light and portable and is specially suited to work where excessive noise, dust and vibration are to be avoided. Although the equipment is portable, experience has shown that holes up to 12 in. in diameter through 10 ft. or more of reinforced concrete can be rapidly drilled.

## Official Notification

*Marking of Imported Heat Insulating Bricks, Blocks and Tiles*

THE BOARD OF TRADE have been advised that imported goods of the following descriptions should bear an indication of origin at the time of importation and also at the time of sale and exposure for sale (including exposure for sale wholesale by a person being a wholesale dealer) in the United Kingdom: Heat insulating bricks, blocks, tiles of infusorial earths, of diatomaceous earths, of kieselguhr, of siliceous fossil meal or of similar siliceous earth.

This recommendation is contained in the Report of the Standing Committee (General Merchandise) set up under the Merchandise Marks Act, 1926, and published on March 22, 1961, as Cmnd. 1316. Copies of the Report may be purchased, price 6d. (by post 8d.) direct from HM Stationery Office, Kingsway, London, WC2 and branches, or through any bookseller.

## Personal Column

MR. L. F. CHAMBERLAIN, chairman of the Chamberlain Group of building and engineering companies, and MR. M. H. BRIGGS, a director, are to visit Trinidad shortly to inspect progress on the new works now being erected for Sanders & Forster (Caribbean) Ltd., the group's newly-formed structural engineering subsidiary.

MR. E. LYLE PIXTON, managing director of British Plimber Ltd., has resigned from the company.

Williaam J. Cox (Sales) Ltd. have appointed MR. JAMES BURDEN as sales representative for their Coxdome acrylic rooflights.

## OVERSEAS BUILDING

*From Our Own Correspondents*

AUSTRALIA (WESTERN).—The West Australian Cabinet has approved a University-Government land exchange which will provide for the construction of a new teachers' training college at Nedlands. Under the plan the college will be built in the 9-acre women's hockey ground in the north-west corner of Stirling-highway and Hampden-road.

HONG KONG.—Work is to start shortly on the construction of a mile-long motor tunnel through the Kowloon hills in Hong Kong, large enough for double decker buses. The actual cutting will take two years to complete and cost about £343,750. Besides a 24-ft. two-lane motor carriageway, the tunnel will accommodate three or four large water mains.

HONG KONG.—The Government has announced the construction of two new secondary schools, one at North Point estimated to cost $4m. This school will have, in addition to classrooms, special rooms for teaching domestic science, tailoring, typing, music, an assembly hall, and laboratories. The second school is to be built near Blake-gardens and will have 24 classrooms to accommodate 2,160 children in two shifts each day.

MALTA.—A subsidiary of Drayden Development is being formed at Valletta with a view to building a number of hotels in Malta. Subject to agreement with the Malta Government, the company are prepared to invest between £5 million and £10 million in the island.

NEW ZEALAND.—Tenders have been invited for the £½m. Whangarei glassworks project. The Ministry of Works has approved the plans with the exception of some minor details.

SIERRA LEONE.—From Freetown, Barclays Bank DCO reports that five new public buildings for Sierra Leone have been planned. Work on all the projects is expected to start soon and they are scheduled to be completed in two years' time. A new town hall overlooking the waterfront is to be built on an island site in the centre of Freetown. It will occupy about 30,000 sq. ft. and will consist of three 'units' linked by terraces, namely, a civic building of two floors including the mayor's parlour and council chambers, a 9-storey tower block with commercial and civic offices, and a multi-purpose hall designed to include a cinema and ballroom and to accommodate banquets and other civic functions. It is also proposed to erect a new 9-storey government administration building in George-street, Freetown, which will be fully air-conditioned. There will be a new General Post Office building and a large extension to the present building at Lungi Airport. A new £100,000 grammar school is to be built at Murray Town.

SPAIN.—The Dirección de Obras Hidráulicas has invited tenders for the provision of drainage at Cinco Villas in the Province of Zaragoza. The cost is estimated at 38,400,000 pesetas.

### Record Public Works in Hong Kong

THE GIGANTIC PROGRAMME of public works in Hong Kong was referred to by the Governor, Sir Robert Black, at the annual dinner of the Hong Kong Engineering Society on March 15. In 1959, he said, there was a record expenditure of more than £15m.; in 1960 the figure had increased to nearly £21m., and it appeared that the coming year was to be one of even greater activity with estimated expenditure exceeding £27m.

## Overseas Contracts Open

HONG KONG.—The Crown Agents for Overseas Governments and Administrations invite tenders on behalf of the Government of Hong Kong for the supply and erection of water pumping plant for two pumping stations in the new territories of the colony. Six vertical spindle pump-sets giving a total installed capacity of 80 mgd are required at each pumping station for the heads of approximately 85 and 300 ft. respectively. The pumps are to be complete with motors but starters and cabling are not included in this contract. Applications for tender documents should be made to the offices of the Crown Agents, at 4 Millbank, London, SW1, quoting reference EC2, Hong Kong 4757, and should be accompanied by a returnable deposit of £10. Tenders should be delivered by May 31. The consulting engineers are Messrs. Binnie, Deacon & Gourly, Artillery House, Artillery-row, London, SW1, and Messrs. Scott & Wilson, Kirkpatrick and Partners, Mansion House, Nathan-road, Hong Kong.

WEST PAKISTAN.—The West Pakistan Water & Power Development Authority invites tenders for the excavation work of pat feeder (Gudu Barrage). The total quantity of earthwork to be done is approximately 870m. cu. ft. and two years will be allowed for the work from the date of arrival on site of the machinery. Earnest money required will be Rs. 180,000, or equivalent in foreign exchange. Tender documents, plan and specification may be obtained from the project director or from the Resident Representative, West Pakistan WAPDA, Ebrahim-court, 2 West Wharf-road, Karachi, or Director Works, West Pakistan WAPDA, the Pipals, Lower Mall, Lahore. The last date for receipt of tenders is June 15 and bidders will be required to keep their bid open for 120 days from the date of opening of the tenders (June 15).

## SCOTTISH BUILDER

### Large-Scale Development for Midlothian

THE BUCCLEUCH ESTATES LTD., under the chairmanship of the Duke of Buccleuch and Queensberry, are arranging, in full co-operation with the Midlothian County Council, to make an area of some 40 acres available for industrial development at Thornybank industrial estate, Dalkeith. The Laing Development Co. Ltd. are to advise on the development of the estate. The site, which is situated on the northern side of Dalkeith by the B6414 road, is reasonably level and lends itself to economical factory construction. Midlothian is now an 'overspill district' for receiving excess population from Glasgow.

The company are offering fully serviced sites of convenient size to suit needs of all industrialists; 99-year leases of sites; subsidised housing for employees; attractive loans from the Board of Trade to help build the factories; and transport facilities. Firms will be free to arrange privately for the design and construction of their factories although, to preserve the overall architectural unity of the estate, Buccleuch Estates Ltd. are to reserve the right to approve plans for individual factories. Special facilities for factory design and construction will be available to developers.

The Board of Trade will grant loans to any industrialist who can show that he will provide employment for people from Glasgow. Repayment is spread over ten years. Further details of these loans from the Board of Trade at 95 Bothwell-street, Glasgow, C2, or Horseguards-avenue, London, SW1.

The Ministry of Labour and Glasgow Corporation have collaborated in the operation of an industrial selection scheme. This is specially designed to assist firms who are willing to recruit labour from Glasgow to become established in 'overspill areas.' The County Council will build houses in the Dalkeith/Newbattle area for employees recruited under the scheme. It is intended that the provision of a new factory for the industrialist and the provision of new homes for employees will go ahead side by side, the success of the scheme being assured by co-ordination between the three authorities concerned, so that the dwellings are available when a particular factory is completed.

Ferranti Ltd. is the first firm to develop on the site. Ultimately they are to build laboratories and factory premises covering about 250,000 sq. ft. of floor space.

### A Glasgow Skyscraper

FULL PLANNING permission has been granted by the Glasgow City Town Planning and Development Sub-Committee for the erection of a 200-ft., 17-storey office block in Sauchiehall-street. This will be the main feature of a building development, costing more than £1m., which is being sponsored by Gula Investments Ltd.

A 58-car underground garage will provide parking space for shoppers as well as for businessmen using the offices. To further ease traffic congestion, special lorry loading bays behind the shops, in Renfrew-lane, will enable lorries to load and unload off the street. Building is expected to begin in May.

On the corner of Sauchiehall-st. and Renfield-st. will stand a three-storey department store. Along Sauchiehall-st., from the store to the tower, will be a parade of eight two-storey shops. Two of the shops will be in the base of the tower. The architects are Arthur Swift & Partners, of London and Edinburgh.

## New Buildings

AYR.—Dean of Guild Court granted permission for the erection of 42 three-storey flats at Annfield Glen-rd., Woodlands-cres., and Wood Park at a cost of £46,459.

EAST LOTHIAN.—EC approved five-year school programme estimated to cost £1.14m.

INVERNESS.—Plans for the first new PH to be built here for nearly 50 years have been approved by the Dean of Guild Court. Cost will be £15,000.

# THE BUILDER CONSTRUCTION NEWS

*Full details of Public Appointments open will be found in the Advertisement pages of this and previous issues.*

## CONTRACTS OPEN

For some contracts still open but not included in this list, see previous issues. Those preceded by the symbol (A) are advertised in this number. The latest date for the receipt of tenders or applications appears above each paragraph. The symbol (R) preceding each entry indicates that applications must be received by this date.

### BUILDING

**APRIL 5**

(AR) WANDSWORTH MBC.—Erection of 16 houses at Wavertree-rd., SW12. TC.

(AR) WATFORD BC.—Complete reinforced structure of 20 elderly persons' flats at Brightwell-rd. Boro' E&S. Dept. £2 2s.

**APRIL 6**

(AR) SURREY CC.—Kitchen and dining extension at Richmond county sec. girls' sch. County A.

**APRIL 7**

BELFAST.—Erection of new headquarters building at Gibson Park-ave., Cregagh-rd., for 26th Belfast Boy Scout Group. Mr. C. Martin, 15 Cregagh Park East, Belfast. Dep. £3.

**APRIL 10**

MUCKAMORE (Co. Antrim).—Erection of two patients' villas at Muckamore Abbey. Secretary, Northern Ireland Hospitals Auth., 27 Adelaide-st., Belfast.

(AR) SOUTHEND-ON-SEA CBC.—(a) Proposed public convenience at Marine-gdns., Western Esplanade. (b) Erection of 36 flats at Victoria-ave. Boro' A. Dep. £2 2s. (each contract).

**APRIL 12**

LARNE RDC.—(a) The erection of 44 dwellings, ten garages and construction of site works and main services at Cloney, Glenarm. (b) Extension to cemetery at Ballyharry, Islandmagee, including the erection of a combined shelter and toilet block. Clerk of Council, Prince's-gdns., Larne.

(AR) SOUTHEND-ON-SEA CBC.—Hardstandings for car parking at seven housing sites. Boro' A.

**APRIL 13**

(AR) EAST SUSSEX CC.—Staff house at Flimwell. County A.

**APRIL 17**

(A) HAVANT & WATERLOO UDC.—(a) Erection of a committee room at Town Hall, Havant. (b) Erection of a public convenience at South-st., Emsworth. E&S (separate contracts).

(A) RUTLAND CC.—Proposed extensions at Great Casterton sec. mod. sch. County A & Planning Officer. Dep. £2 2s.

**APRIL 19**

(A) EAST GRINSTEAD UDC.—Fixed price tenders for: (a) Partial demolition and re-erection of brick-built garage, provision of seven-bay building, etc., at Durkins-rd. depot. (b) Erection of 30 garages, etc., at Sackville-gdns. and Allens-cl. S. Dep. £2 2s. (each contract).

**APRIL 21**

(A) ESHER UDC.—Firm price tenders for seven dwellings at Tarter Hill, Cobham. E, S & Planning Officer. Dep. £2 2s.

**APRIL 22**

(A) BOURNEMOUTH CBC.—Fixed price tenders for the conversion of Beaufort-hse., Beaufort-rd., Southbourne, into health home. Boro' A. Dep. £2 2s.

**APRIL 24**

(A) KEARSLEY UDC.—Purchase of 6.129 acres of land at Mossfield-rd. estate. E&S.

**APRIL 28**

(A) MIDDLETON BC.—Firm price tenders for 67 houses, three bungalows and 30 flats at Hollin estate, Middleton. Boro' S. Dep. £2 2s.

**APRIL 29**

(A) BATH CITY C.—Rebuilding of Nos. 5, 6 and 7 Somerset-pl., to form extension of students' existing hostel accommodation. H. D. Roberts, architect, 30 Brock-st., Bath. Dep. £2 2s.

(A) OLD FLETTON UDC.—(a) 76 houses; (b) 41 garages; (c) external services to both. Ruddle & Wilkinson, Long Causeway-chbrs., Peterborough. Dept. £2 2s.

**MAY 1**

(A) WELWYN RDC.—20 garages at Queensway estate. S.

(A) WHITBY UDC. — Alterations and extensions to old market hall clothing factory. E&S. Dep. £2 2s.

**MAY 2**

(AR) GREENWICH MBC.—Erection of 54 flats and maisonettes at Lansdowne-la., Charlton, SE7. Boro' E&S.

**MAY 5**

(R) BELFAST.—Erection of proposed new intermediate sch. for boys at Britton's-par., Belfast. John A. Tynan, 33 Malone-rd., Belfast. Dep. £6 6s.

(A) BOURNEMOUTH CB.—Fixed price tenders for staff room extensions at Bournemouth sch., East Way. Boro' A. Dep. £1 1s.

**MAY 19**

(A) LEOMINSTER BC.—Erection of 12 houses at Hawthorne-pl. site. Boro' S. Dep. £3 3s.

### SERVICES, PAINTING, MATERIALS, ETC.

**APRIL 8**

(AR) BOURNEMOUTH CBC.—Fixed price tenders for electrical sub-contract work for housing contract K.24 (A) at Kinson estate. Boro' A.

**APRIL 10**

(A) ORMSKIRK UDC.—External painting of 389 houses at Burscough/Ormskirk. S.

(A) WHITSTABLE UDC.—External rendering of 14 houses at Westmeads estate. E&S.

**APRIL 13**

BELFAST.—External repainting of 82 dwellings and 23 garages at Rathcoole (Dev. 1). Northern Ireland Housing Trust, 12 Hope-st., Belfast.

**APRIL 19**

(A) EPSOM & EWELL BC.—Reconstruction of retaining wall at Ox-la., Ewell. Boro' E&S. Dep. £2 2s.

**APRIL 24**

(AR) WANDSWORTH MBC. — Interior modernisation and decoration at Town Hall. TC.

### MUNICIPAL AND CIVIL ENGINEERING WORKS, ETC.

**APRIL 14**

(R) ENNISKILLEN RDC.—Supplying and laying of approx. 3,000 yd. of 10 in. dia. class D asbestos cement water mains and specials for Brockagh Bridge to Letterbreen water scheme. Council Offices, Cornagrade, Enniskillen, Co. Fermanagh. Dep. £5 5s.

### GENERAL BUILDING WORK (LONDON)

LONDON (City)—Showrooms, Offices.—The Court of Common Council on March 23 granted permission, in accordance with plans submitted, for the erection of a building in the Lambeth Hill area. The building is to include warehouses, showrooms, offices, confirming houses, and accommodation for allied trades. The site is part of 77 and the whole of 77A, 79, 81, 81A, 83 to 93 (odd) Queen Victoria-street, with frontages to Lambeth Hill, Upper Thames-street, and Fye Foot-lane. Architects for the scheme are R. Ward and Partners, of 29 Chesham-place, SW1.

LONDON (City).—Miscellaneous Building.—The Court of Common Council on March 23 approved drawings for the erection of an ancillary office building for use in connection with the printing works of the Times Publishing Co. Ltd. on a site bounded by Queen Victoria-street, St. Andrew's-Hill, Ireland-yard, Playhouse-yard, and Blackfriars-lane (permission granted on May 28, 1959); watch house and vestries destroyed by wartime bombing at St. Sepulchre's Church, Holborn Viaduct (March 10, 1960); an office building comprising basement and six upper floors on the site of St. Swithun's Church, Cannon-street (Sept. 22, 1960); single storey shops and the improvement of the entrance to Hamilton House for a period of 20 years at shop No. 2, 135 to 153 (odd) Bishopsgate (Feb. 13, 1958); an office building comprising sub-basement, storage and boiler room, basement car park and storage and ground and first to fifth floors—offices at 13 to 16 George-street (July 28, 1960); a 19-storey office building with shops, public house, restaurant and basement car park at 63 to 72 and parts of 73 to 77 Wood-street with frontage to Monkwell-street, Fell-street, London-wall, Winchester-avenue, and Silver-street (Sept. 22, 1960); a building comprising basement car park, ground floor showrooms and licensed premises with five floors over for use as offices, at 20 to 22 Cannon-street with frontage to Bread-street, Friday-street and Queen Victoria-street (Oct. 9, 1958); part-reconstruction of Holborn Viaduct railway station, erection above the part fronting Holborn Viaduct of a new building partly for the requirements of the Commission and partly as offices (Sept. 22, 1960); the erection of a block of 12 flats, a caretaker's flat and a penthouse at 1 to 4 Amen Corner and 13, 13A and 14 Warwick-lane (July 9, 1960); an office building, comprising basement, ground and four upper storeys at Greystoke-place school site (June 16, 1960); a multi-floor car park and workshops, with petrol filling station and a car sales showroom at 158 to 170 Aldersgate-street with other frontages (Jan. 24, 1957); a new building with 140,000 sq. ft. or more gross floor space for warehouse use, the remainder to be used as offices with shops and one licensed premises and four residential units in a penthouse, at 24 to 40 Fore-street with other frontages (May 26, 1960).

The Council also approved drawings and details of materials for the erection of an office building with four retail shops, licensed premises and a bank on the ground floor at 24 to 32 King William-street, with frontages to Crooked-lane and Arthur-street (Oct. 20, 1960).

LONDON CC—New Hostel.—LCC health committee has approved plans for the Council's first purpose-built hostel for the mentally disordered at Brockley Rise, Lewisham. The hostel will have single bedrooms for 62 patients but it will be possible to convert 30 of the rooms into 15 double rooms by the removal of partitions. Building will be a three-storey block with two single-storey wings enclosing a paved and planted court. The estimated cost of the building and of the equipment is £93,305. The housing committee proposes to put in hand a £30,000 programme for the provision of a further 150 garages and 300 sheds in tenants' gardens on cottage estates. The cost of the work will be offset by £10,000 saved from previous programmes.

WEST HAM.—Road Improvement.—LCC Roads Com. have approved a scheme for an improvement at Bow Bridge, which crosses the county boundary on the River Lea. The scheme presents a number of interesting problems of design and construction. The roundabout will be partly over the River Lea and it will be necessary to put in a temporary bridge during the course of the work and demolish the present bridge. The tow-path for the horse-drawn barges on the River Lea will need to be re-routed. To help deal with the increased Blackwall Tunnel traffic, Old Ford-rd. is to be realigned and widened for about a quarter of a mile. It is hoped to start work in 1964, and the cost of the scheme will probably be of the order of £1½m., although detailed estimates have not yet been prepared. West Ham CBC, in which area the improvement partly lies, has been consulted on the scheme and will make a contribution towards the cost.

WOOLWICH.—New Landing Stages.—The landing stages to Woolwich Ferry are to be

replaced as part of the scheme for the modernisation of the ferry. These improvements will cost about £1m. The LCC has stated that it is necessary to obtain Parliamentary powers both to carry out the proposed improvements and to deal with special claims for compensation likely to arise as a result.

## (PROVINCIAL)

ALDERSHOT. — Property Investments Consolidation Ltd. propose shop and office block on site of Hippodrome Theatre, Station-rd., £100,000 est. Architects, Carl Fisher & Associates, 56 Portland-pl., London, W1.

AYLESBURY.—BC propose additional storey for offices at cattle market; to negotiate with M.E. Developments Ltd., Watford, for two factories, Buckingham-rd. industrial estate; to invite tenders for factory at the Gate House industrial estate.

BARNARD CASTLE.—Work is expected to start this summer on the erection of a library at Barnard Castle sch. The library is part of an extension scheme, costing £65,000, which will include biology and general science laboratories. The architects are W. B. Edwards & Ptnrs., Cathedral-bldgs., Dean-st., Newcastle-on-Tyne.

BARROW-IN-FURNESS. — Manchester Regional Hospital Board propose converting ward into reception unit, North Lonsdale Hospital.

BEDFORD.—Plans have been approved for police headquarters in the new town centre to cost £185,000.

BLYTH.—Matkin & Hawkins, Barclays Bank-chbrs., Fawcett-st., Sunderland, have prepared plans for 12 bungalows on the Parkfield Estate for J. M. Reid & Son, builders, Seaton Delaval.

BRISTOL.—Sitefinders Ltd., of 16 Berkeley-st., W1, and 237/239 High-st., Guildford, report that acting on behalf of their clients, The Rodwell Group Ltd., they have acquired a site in Marsh-st., Bristol, for office development which will have a gross floor area of about 70,000 sq. ft. It is understood that the value of the development is expected to exceed £300,000 in cost.

CLAYTON-LE-MOORS. — Health Com. seek site for erection of new clinic.

CONGLETON.—BC propose erection of 20 old people's flatlets/communal room/warden's flat, Dane-st.

CROWTHORNE.—Easthampstead RDC propose erection of 24 aged persons' dwellings and six bungalows at Talmadges Field.

DARLINGTON.—Quantities are to be prepared for offices at the public abattoir for the TC. The Boro' A is E. A. Tornbohm. . . . Plans have been approved for the erection of another 82 houses on the Firth Moor estate (Stage 3).

DEWSBURY.—Following for BC: Erection of hostel for mentally handicapped persons/home for old people, Staincliffe-rd.

DURHAM.—The RDC has received sanction to borrow £52,583 for the erection of houses at Bowburn, Witton Gilbert and Bearpark. . . . The RDC has applied to Durham CC for grants towards the Kimblesworth and Bearpark sewage disposal schemes.

ELLESMERE PORT.—Mr. Harry Waterman proposes erection of new hotel, town centre.

FAREHAM.—Bournelands Ltd. have submitted application for residential development of 35½ acres of land off Peak-la. for flats, terraced houses, lock-up garages and shops. . . . Brading & Blundell Ltd. have submitted application for similar development as well as filling station and public house on 32½ acres off Peak-la., Fareham.

HALIFAX.—BC propose 2nd phase, Victoria Hall development scheme, £59,000 est.

HARTFORD.—Northwich RDC propose erection of 26 bungalows, Riddings-la.

HEANOR.—UDC propose erection of one-bedroomed flatlets, Marlpool housing estate.

ILKESTON.—The Stanton Iron Works Co. Ltd. propose major extensions to existing premises.

KINGSTON-ON-THAMES. — Surrey CC propose erection of welfare centre/school clinic at junction of Acre and crossroads. £36,025 estimated.

### *Contracts Placed*

*We are glad to receive from architects and quantity surveyors for publication details of contracts placed to the value of £20,000 or over. Such information should reach the Editor as soon as possible after the contract is signed. Names of the architect and other consultants associated should be given.*

KNUTSFORD.—Manchester Regional Hospital Bd. propose improvements, physiotherapy/x-ray dept., Cranford Lodge Hospital.

LANGLEY.—Bucks. CC propose completion of fire station, £40,000 est.

LEEDS.—TC propose erection of 64 dwellings/garages, Boggart Hill-dr.

LEIGH PARK (Hants.).—SE Hants. area planning com. is recommending approval to application by J. C. Nicholls Ltd., for erection of eight three-storey houses at junction of Ramsdale-ave. and Parkhouse Farm-way, Leigh Park.

LIVERPOOL.—Hope Bros. Ltd., propose major redevelopment plans, Lord-st.

MAIDENHEAD.—BC propose shopping centre and supermarket at Wessex-way, Cox Green.

MIDDLESBROUGH.—A two-storey office block is proposed at the corner of Snowdon-rd. and West-st. for McNays Ltd., Stockton-st., Middlesbrough. Plans are being prepared by J. G. L. Poulson, 54 Albert-rd., Middlesbrough. . . . Electrical Components Ltd., Zetland-rd., Middlesbrough, are to erect a two-storey warehouse, offices and car parking facilities at the corner of Albert-st. and Bridge-st. west, Middlesbrough. The architects are Kitching & Co., 21 Albert-rd., Middlesbrough. . . . Plans have been approved for 24 houses at Easterside for the TC. Plans are by the Boro' E (J. A. Kenyon).

NEWCASTLE-ON-TYNE.—Cackett Burns Dick & Mackellar, 21 Ellison-pl., prepared plans for alterations to Barclays Bank, Grainger-st. . . . M. White, 11 Tynedale-ter., Newcastle, is the architect for a proposed factory in Stoddart-st. and Bermondsey-st. for Julius Bernet Ltd., Park-rd., Newcastle. . . . A bulk flour silo is to be built at the new Tyne Quay for Spillers Ltd. Plans are by Oscar Faber & Ptnrs., Torrington-hse., Holywell Hill, St. Albans, Herts.

NORTHWICH.—Ches. EC propose erection of new girls' sec. sch., Chester-rd., Hartford.

NOTTINGHAM.—TC propose adaptations, Nottingham & District Technical College.

ORMSKIRK.—Lennons Ltd. propose erection of supermarket, Church-st.

ORRELL.—Mr. G. Halliwell proposes housing development, Moor-rd.

PORTSMOUTH.—Work is starting on construction of Anglesea-rd. swimming baths. MH&LG has approved loan sanction of £326,500. Contractors: Messrs. John Hunt Ltd. . . . Development & Estates com. is recommended to use site of St. Bartholomew's Church, Southsea, for municipal housing purposes. . . . City Council is to build 50 houses and 44 garages at Wymering for £128,919.

ST. HELENS.—Following for BC: Social centre for handicapped persons, £25,000 est.; aged persons' hostel, £60,000 est.

SALFORD.—Royal Co-operative Collecting Society propose erection of shops/offices, Chapel-st. Threlfalls Brewery Co. Ltd. propose erection of new hotel, Regent-rd.

SALISBURY.—Work is to commence on the new welfare centre for CC to be built on site adjoining central car park. Est. £50,000.

SLOUGH.—London and Provincial Shop Centres Ltd. propose two-storey shops at 288-294 High-st. Architect, H. Owen Luder, 79 Regency-st., London, SW1.

STAFFORD. — TC propose extensions, public library.

STAFFS.—North Staffs. Medical Society propose erection of medical institute, £100,000 est. . . . Following for CC: Extensions, existing schools, Kindsgrove/Newcastle and erection of new schools, Leek/Stafford/Newcastle during 1962-63, all approved by Ministry.

SUNDERLAND.—G. T. Brown & Son, 14 Grange-ter., Stockton-rd., have prepared layout plans on behalf of Stewart Brothers Ltd., 50 Frederick-st., builders and contractors, for the erection of houses near Silksworth-la. . . . Thomas Reed & Co., printers and publishers, 184 High-st. west, are to purchase 1¾ acres of land at the junction of the Parade and a new classified road, for proposed business developments.

WANTAGE.—RDC's 1961 housing programme includes: Grove 32 dwellings; East Hanney 12; Letcombe Bassett four (old people's bungalows); East Hendred 20; Compton 16; and Harwell 24.

WANTAGE.—Mr. F. S. V. Donnison proposes erection of 37 cottages and houses, one guest building, 34 garages, ancillary accommodation and communal dining room between South-st. and London-rd., Blewbury.

WARLINGHAM.—Block of shops and maisonettes over at The Green. Architects, Wright & Swan, Tregeare, Upper Court-rd., Waldingham.

WATFORD.—Herts. CC propose stage 2 of alterations at the Technical College. Architects, Lanchester & Lodge, 10 Woburn-sq., London, W1.

WEST HENDFORD.—Southern Electricity Bd. propose to erect engineering workshops and garage accommodation at West Hendford, Yeovil. Tenders are to be invited.

WIGAN.—BC to consider erection of senior training centre, £36,000 est.

WOKING.—G. Parfitt propose 32 dwellings on site of Old Oaks, Poplar-rd. Knaphill Developments Ltd. propose erection of 142 terraced houses, 102 semi-detached, 12

detached and 256 garages at Hermitage-rd. and Inkerman-rd., St. Johns.

WOKINGHAM.—The Widmore Finance Co. propose 70 flats behind 'The Elms,' Broad-st. RDC approved 127 houses and flats at Coppice Estate for James Miller & Ptnrs. Ltd. 18 houses and garages at Old Bath-rd., Woodley, for E. E. Reed & Co. (Builders) Ltd. 101 dwellings, including ten-storey block at Shepherds-hill, for Mrs. Delatour Corrie.

WOODLEY (Berks.).—Wokingham RDC has received outline building applications for development in Woodley area: extension to James Miller estate of 127 houses and flats with garages, roads and sewers on the Coppice estate; 18 houses and garages at the Old Bath-rd., Woodley, for E. E. Reed & Co. (Builders) Ltd.; large blocks of flats at Shepherds-hill, comprising one ten-storey block, six two-storey blocks, two four-storey blocks of maisonettes with one garage and caretaker's accommodation, in all 101 dwellings for Mrs. Delatour Corrie.

## TENDERS

(A) Denotes *accepted*.
(PA) Denotes *provisionally accepted*.
(RA) Denotes *recommended for acceptance*.
(AM) Denotes *accepted subject to modification*.
(GD) Denotes *accepted subject to approval by appropriate Government Department*.

ASHTON-UNDER-LYNE. — New workshops and two children's blocks at Aston Hall for Sheffield Regional Hospital Bd. (A) W. J. Simms Sons & Cooke Ltd., Sherwood, Nottingham. Erection of 40 'Homeville' flats at Vicarage-cres. for BC. (A) Middleton & Co. (Contrs.) Ltd., Preston.

ATHERSTONE.—24 houses and two bungalows at Warton for RDC. (A) Henney & Crowley, Dordon, £41,885.

BALLYMENA (Co. Antrim).—Factory extension at G. B. Britton & Sons Ltd., Paradise-av., for Ministry of Commerce. (A) Samuel Turtle, Ltd., Broadway-ave., Ballymena.

BLETCHLEY.—Aged persons' home at Rickley-la. for CC. (A) Winton Hayes Ltd., Biggleswade, Beds.

BOLTON.—Block of shops at Oxford-st. for Leeds Permanent Building Soc. (A) John Dickinson & Co. (Bolton) Ltd. Erection of St. Cuthbert's sec. sch. for RC Auth. (A) E. Taylor & Co. Ltd., Littleborough, Lancs.

BRISTOL.—Extensions to factory at Hotwell-rd. for Hall and Fitzgerald Ltd. (A) Henry Willcox & Co. Ltd., Bristol. Factory and offices at Whitehouse-st./Whitehouse-pl. for Creech & Co. Ltd. (A) Wilkins & Coventry Ltd., Bristol.

CANNOCK UDC.—Fixed price tenders for: (a) Four houses at Rodhill-rd., Chadsmoor; (b) two bungalows at Pye Green-rd.; (c) 18 dwellings at Avon-rd.; (d) 16 dwellings at Ward-st., Hednesford. A is H. Wilcox, Architect's Department, High-Green, Cannock. Quantities by Architects' Dept. (A) F. A. & H. Taylor, Bloxwich, Staffs., £58,494 (not including site 50A).

CHELTENHAM.—Erection of 20 flats for old people at Griffiths-ave. for BC. (GD) H. W. Tily & Sons Ltd., £32,164.

CHORLEY.—Extensions to service store, for Leyland Motor Co. (A) Leyland Construction Co. Ltd., and Holland & Hannen and Cubitts (North West) Ltd.

COOKSTOWN (Co. Tyrone).—29 dwellings and 6 garages at Blackhill for RDC—(A) Anthony Nugent, Pomeroy, £47,071.

DERBYSHIRE.—Erection of New Heath cty. sec. sch. for Ed. Com. (A) H. Baggaley Ltd., £171.576.

DRONFIELD. — For 48 'Homeville' traditional houses, flats and bungalows at Smithy Croft for UDC: (A) Bailey & Martyn (Holdings) Ltd., Bank-st., Sheffield.

HESTON & ISLEWORTH.—Pavilion and conveniences at Thornbury playing fields for BC. (A) Williams Brothers (Carshalton) Ltd., £21,123.

HITCHIN.—Erection of 146 dwellings at Westmill estate for UDC. Designed by Wates Architectural Dept. (A) Wates Ltd., London, SW16, £238,690.

IMMINGHAM (Lincs.).—Design and erection of superstructure of fertiliser store for Fisons. (A) Rainham Timber Engineering Co. Ltd., Essex.

IVER.—Completion of county sec. sch. and phase 1 of county prim. sch. at Iver Heath for Bucks. CC. (A) Halfacre & Young Ltd., Holyport-rd., Maidenhead, £130,000 and £19,100.

KEIGHLEY.—Major extensions to existing premises for Keighley Lifts Ltd. (A) H. V. Robinson Ltd., Keighley.

KINGSTON-ON-THAMES.—Erection of Riversmead county sec. boys' sch. for BC. (A) Griggs & Sons Ltd., 56 Victoria-st., London, SW1.

LAMBETH.—Building works depot at site No. 137, Binfield-rd., and Lansdowneway for MBC. (GD) J. Jarvis & Sons Ltd., £49,353.

LEEDS.—Erection of Ebordene old peoples' hostel for TC. (A) Robert R. Roberts (Leeds) Ltd., £82,700.

LEICESTERSHIRE.—New records office at Glen Parva Barracks, South Wigston. (A) M. J. Gleeson (Contractors) Ltd., £219,000.

LIVERPOOL.—Extensions to Abercrombie-sq. for The Senate, University of Liverpool. (A) W. H. Snow Ltd., Liverpool 6.

LLANELLY.—Structural concrete units at new factory for Fisher & Ludlow. H. W. Weedon, architect. (A) Concrete Development Co. Ltd., Iver, Bucks., £188,000.

LONDON.—Erection of bank and office premises at junction of Pombridge-gdns. and Notting Hill Gate. Architects: Beard, Bennett, Wilkins & Ptnrs., 101 Baker-st., W1. QS: Fleetwood Eversden & Ptnrs. (A) Higgs & Hill Ltd., £95,000 (approx.).

LONDON CC.—Adaptation and equipment of C block at Hillside, Islington North.

| | |
|---|---|
| William J. Jerram Ltd. ... ... | £26,940 |
| Pitchers Ltd. ... ... ... ... | 26,810 |
| A. T. Rowley (London) Ltd. ... | 26,592 |
| S. C. Grover Ltd. ... ... ... | 26,400 |
| Howard Farrow Ltd. ... ... | 26,348 |
| R. J. Truscott Ltd. ... ... ... | 25,974 |
| (A) Buckingham & Sons, Ltd. ... | 24,206 |

Architect's comparable estimate was £23,677.

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LONDON CC.—Provision of adult education and youth centre at Alton estate, Wandsworth, Putney. Tenders were invited for the work on a fixed price basis:

| | |
|---|---|
| Wates, Ltd. ... ... ... ... | £56,072 |
| Sims & Russell, Ltd.... ... ... | 53,114 |
| A. T. Rowley (London), Ltd. ... | 49,879 |
| J. M. Hill & Sons, Ltd. ... ... | 48,608 |
| R. H. Lynn & Co. Ltd. ... ... | 48,338 |
| (A) H. T. Oliver & Sons, Ltd., Wandsworth ... ... ... | 47,302 |

Architect's comparable estimate is £46,597.

(GD) LONDON (Admiralty).—Particulars of contracts over £4,000 in value: *Dunbartonshire:* Storage depot; John Howard & Co. Ltd., 13 Buckingham-gate, London, SW1. *Kent:* Supply and erection of lift; Otis Elevator Co. Ltd., 41-43 North-st., Brighton. *Northern Ireland:* Erection of garages; McLaughlin & Harvey Ltd., Londonderry.

(GD) LONDON (British Railways). — Recent contracts placed by North Eastern Region: Construction of new office accommodation at Consett goods depot, Co. Durham; R. E. Coleman Ltd., Carville, Durham. Erection of new staff amenity block at Low Moor (Bradford) fork carriage sidings; F. & J. Watkinson, Bradford. Construction of new signal box at Belford Station, Northumberland; Berwick Building Co., Berwick-on-Tweed.

LONDON (Ministry of Works).—Recent contracts placed—*Berkshire:* Automatic telephone exchange, Winkfield Row, erection, J. M. Jones & Sons, Ltd., Maidenhead; Broadmoor Institution, Crowthorne, adaptations to form medical centre, G. W. Oliver & Sons, Ltd., Basingstoke. *Cambridgeshire:* Telephone repeater station, Trumpington, extension, Coulson & Son Ltd., Cambridge. *Cornwall:* Radio station, Bodmin, extension, S. Carthew & Son, Ltd., Torpoint. *Lanarkshire:* Telephone engineering centre and motor transport workshop, Coatbridge, erection, Scott & Co. (Builders), Ltd., Motherwell. *Lancashire:* Post Office, Morecombe-rd., Lancaster, internal and external painting, Ernest Webster & Co., Ltd., Manchester, 16. *London:* Post Office, sorting office and garage, West Norwood, erection, W. H. Gaze & Sons Ltd., Kingston-on-Thames, Surrey. *Midlothian:* Post Office office, Regional training school, West Pilton, Edinburgh, erection, John Best (Contractors) Ltd., Edinburgh, 3. *Renfrewshire:* Telephone exchange, High Barholm, Kilbarchan, erection, J. Woodrow & Sons, Ltd., Bridge-of-Weir. *Suffolk:* Ministry of Agriculture and Fisheries and Food, Drill Hall, Ipswich, adaptations for milk laboratory, Sadler & Sons, Richmond-road, Ipswich. *Sussex:* Telephone exchange, Cooden, erection, Keith Andrew & Co., Ltd., Worthing. *Warwickshire:* Ministry of Pensions & National Insurance, 143 Birmingham-road, Sutton Coldfield, occupational services, G. T. Stephens & Sons, Ltd., Sutton Coldfield.

LONDON (War Department).—Contracts placed for week ended March 17.—*Cumberland:* Building work at Carlisle, the Building & Repairs Co. (Carlisle 1959) Ltd. *Dorset:* Roadwork at Lytchett, the Limmer & Trinidad Lake Asphalt Co. Ltd., London, SW1. *Essex:* Roadwork at Colchester, Roadworks (1952) Ltd., Ipswich. *Hampshire:* Building at Aldershot, A A. Stuart & Sons (Contractors) Ltd., London, W1. *Isle of Wight:* Miscellaneous works at Sandown, C. E. Banks & Son, Sandown. *Shropshire:* Building work at Shrewsbury, M. A. Boswell (Contractors) Ltd., Wolverhampton. *Surrey:* Building work at Camberley, Davies & Rentowl (Aldershot) Ltd., St. Albans. Electrical work at Camberley, I. Groves & Co. Southampton.

LONDONDERRY. — Reconstruction of approx. 2 miles of road between Coleraine and Garvagh. (A) J. McLean & Sons, Knockloughrim, £79,370.

OMAGH (Co. Tyrone).—Factory extension for Omagh Shirt & Collar Co. Ltd., Kevlin-rd., Omagh, for Ministry of Commerce. (A) P. O'Neill & Co., Cannonhill, Omagh.

SOUTHAMPTON CBC.—Erection of new science block at Western sec. sch. D. M. Little, ARIBA, Boro' A. Quantities by Boro' Architects Department. List of tenders:

| | | |
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| W. E. Chivers & Sons Ltd. ... | ... | £23,932 |
| G. S. Hallum & Sons Ltd. ... | ... | 23,740 |


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| A. E. Jukes & Son Ltd. ... | ... | 22,557 |
| Louis S. Tuffin ... | ... | 22,115 |
| John Lewis Building Ltd. ... | ... | 21,692 |
| (A) H. G. Ross & Sons Ltd. | ... | 21,348 |

LONGBENTON (Northumberland).—Erection of 46 houses at Moor View, Burradon, for UDC. (A) Graham & Son Ltd., Haslamhse., Westcroft-rd., Forest Hall, Newcastle-on-Tyne (subject to Ministry approval).

LUTON.—New central library for TC. (A) J. M. Hill & Sons (Ampthill) Ltd.

MANCHESTER.—Extensions to Wylex-wks., Sharston-rd., Northenden, for G. H. Scholes & Co. Ltd. (A) E. Taylor & Co. Ltd., Littleborough, Lancs. Extensions to Trafford Park-rd., Stretford, for Springfield Warehousing & Wharfage Co. Ltd. (A) G. & J. Seddon Ltd., Little Hulton, nr. Manchester. Conversion of Odeon Cinema, Cheetham Hill, for Circuits Management Assoc. Ltd. (A) Smith & Allcock Ltd., Old Trafford, Manchester.

MARKET DRAYTON.—Flats, bungalows and garages between Stafford-st./Longlands-la. for UDC. (A) Frank Healey & Sons.

MIDDLESBROUGH. — Erection of engineering and commercial depot at Cargo Fleet-la. for the North-Eastern Electricity Bd. Architects are L. J. Couves & Ptnrs., Grainger-chbrs., Hood-st., Newcastle-on-Tyne. (A) A. Robinson (Contractors) Ltd., 423 Linthorpe-rd., Newcastle-on-Tyne.

OXFORD.—Erection of 59 houses and 20 garages at Blackbird Leys estate for TC. (A) C. Bryant & Son Ltd., Birmingham, £128,674.

RUNCORN.—Erection of 20 aged persons' dwellings for UDC. (A) W. E. Jones (Contractors) Ltd., £34,208.

SALFORD.—Major alterations to Kersal Vale-wks. for Cussons Sons & Co. Ltd. (A) J. Gerrard & Sons Ltd., Swinton, Lancs., £69,000. Extensions to North Salford sec. mod. sch. for girls for TC. (A) David Walton & Co. Ltd., £54,189.

STAFFORD.—For erection of new station buildings and yardmaster's office, Stafford station, for BR (London Midland region). (A) Percy G. Trentham Ltd., Stoke-on-Trent (station buildings); George A. Poole Ltd., Newcastle, Staffs. (yardmaster's office).

SURBITON.—New research laboratories at Davis-rd. for Decca Ltd. (A) Fassnidge Son & Norris Ltd., Uxbridge.

SWINTON & PENDLEBURY. — Erection of 28 dwellings at Ringlow Park-rd./Water-st. for BC. (A) G. & J. Seddon Ltd., Little Hulton, Walkden, Manchester, £61,033.

TIPTON.—Erection of 74 dwellings at Groveland-rd. for BC. (A) Direct labour.

TROWBRIDGE.—Erection of 187 dwellings and 136 garages at Grove estate for UDC. (A) T. Holdoway & Sons Ltd., Westbury, £475,662. Erection of six aged persons' bungalows at Islington. (A) Gaiger Bros., 50 Nortgate-st., Devizes.

WAKEFIELD.—New swimming pool at Thornes House sch. for EC. (A) Elvey, Steel & Brook Ltd.

WALSALL.—Erection of 96 flats, ten houses and 77 garages at Field-rd. cemetery site for CBC. Designed by Wates Architectural Dept. (A) Wates Ltd., London, SW18, £274,926.

WEST HARTLEPOOL. — Erection of family group home at Bonnyrigg-walk, Owton Manor estate for TC. (A) W. W. Brazell Ltd., Raeburn-st., West Hartlepool. Erection of 60 'Clinecon' houses on Rift House estate for North-Eastern Housing Assn. (A) Thomas Armstrong Ltd., Robson-st., Newcastle-on-Tyne.


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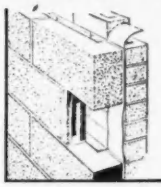

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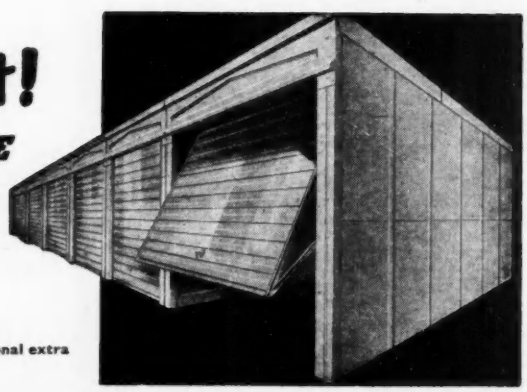

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